

A decade of heroics

For 10 years, the Computerworld Smithsonian Awards have honored excellence in IT. Pages 37 and 71

The Newsweekly for Information Technology Leads News updates, features, forums: www.computerwarid.com June 8, 1998 - Vol. 32 - No. 23 - 122 pages - \$4/Copy

Security tool blocks document misuse

ENABLES TIGHTER CONTROL OF DIGITAL INFORMATION

By Gary H. Anther

A SOFTWARE START-UP ROMOTTO will introduce a security product said to provide users with unprecedented ability to control and safeguard electronic docu-

ments - especially ACCESS from insiders. om insiders.

PageVault, from

MANAGEMENT employees with access to confidential Authentica Security Technolories. Inc. in Gaithersburg, Md. will be available by the end of

the month. It will let users do

Tailor access to a document so that certain pages, paragraphs

and images can be read by some users but not by others Distribute documents that an

unreadable until a specified date and time Ensure that confidential infor mation can't be printed. Guarantee

employees with acinformation at work can't access the same information from other locations or take it with them when they leave the company.

The basic features already exist in various forms, but the Security tool, page 90

Uncertainties stall move to euro standard

By Thomas Hoffman

WILCOME TO the euro problem. If you conduct business across the Atlantic, you have less than aoo days. Your financial systems need to support buying and selling goods in the new monetary unit and 11 na tional currencies. And government rules guiding the process are missing - or expected to

The euro will be introduced in January, as corporate bookkeeping, credit-card payments and other transactions begin trading in the new currency (though coins and notes won't

he issued until 2002). The curo is like the year acco bug in that it has created a critical deadline coming near the turn of the century. But it is Euro, page 91

Online ticket sales jump; outlook good

By Sharon Mackli

WER-BASEN ticket sales may still

be a small piece of overall ticket revenues, but surging growth is sparking optimism that electronic commerce investments could be poised to pay off. Ticketmaster Group, Inc. last

week reported "phenomenal growth" for its World Wide Web site, selling a half-million tickets online worth a total of nearly Sao million during the quarter ended April 30. That's up from just \$5.3 million a year ago. The West Hollywood, Calif., com-Online ticket sales, page 90

▶ The IT overhaul behind VW's Beetle comeback

By Julia King PUEBLA, MEXICO

FIRE-PRICING BER. Banana vellow. Water-bug black. Every minute, two shins, built-to-order Volkswagen Beetles glide off the all-new computerized factory floor here.

In a single day, up to 1,000 cars - some days, no two alike are manufactured to the specifications of adoring customers worldwide. Some are willing to wait months for the metallic-silver one Virtually everything about the reincarnated bug - from its liquid-cooled engine to its \$17,000 sticker price - is new So is all of the information technology enabling the car's wildly

successful comeback. Behind the Beetle's rebirth is the largest technology renovation in Volkswagen AG's history It started with a \$100 million outsours ing deal and led to a new factory information system and a massive data center migration to client/server Unix systems, Oracle Corp. databases and SAP AG software

VV Beetle cometack, page 25



The VW Mexico factory

Why is Jack Welch smiling?



is confident that GE's ign will add bit s to the company's ottom line. He also has ence in the abil ties of the point man Ing the campa CIO Gary Reiner.

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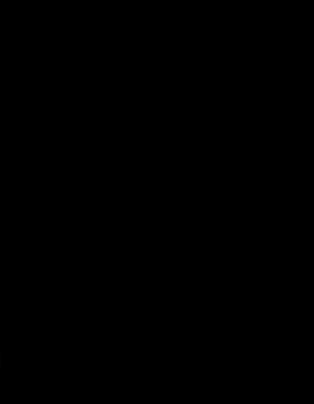


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- © 266 or 300 MHz with 512 KB secondary cache
 High availability features include Hot Plug drives and optional redundant Hot Plug power supplies
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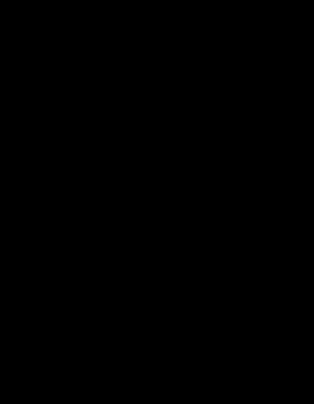
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Netscape touts recovery plan · Company preps Netcenter for portal battle in hopes of No. 1 status

Back to basics

We heard you. Comautorworld has sim-

olified its Web site I've learned a few things from this. Don't by to be cool if for the sake of being coel. Don't force your customers to n learn things just so they can remain your custs

I also want to blow our horn a little. Last week Go



straives to get back in the black, Netscape Communications Corp. last week detailed a long-term recovery plan that mines upgraded enterprise software products, berfed-up electronic-commerce offerings and a visionary scheme for turning sts Netcenter World Wide Web site into the "world's largest E-commerce network." The Mountain View, Calif.

software maker plans to desote from son to 600 em. ployees to battling the likes of Yahoo, Inc. and America Online. Inc. in a bid to become the chief Internet portal. Netscape Executive Vice Press dent Marc Andreessen told Computerworld in an interview (see below). The company claims that Netcenter now boasts 5 million members.

enterprise software and Internet portal services businesses converging as companies increasangly look to outsource services such as business-to-business electronic commerce. Companies can pay to have their applications hosted on Netcenter, or they may choose to buy exposure on the site. Netscape may also derive transaction-based and traffic-sharing income from

Netscape will have to work to establish a trusted environment so husinesses feel comfortship about exchanging information over the Internet, raid Tim Sloane, an analyst at Boston based Aberdeen Group. Inc. Although the trading-commu nity opportunity exists for large cape customers such as Ford Motor Co. and Citicorp's Citibank division to host appli cations on the Netcenter portal

Netscape executives see their no customer was were an nounced last week.

"We're always looking to increase traffic, but we are a bank, so we want to get the right land of traffic," said Nina Das, a vice president at Citibank, which last month signed a major deal to use Netscape's electronic-commerce software. Das said her company has no plans to be involved in the Netcenter site

Still, analysts see a huge op portunity in the Netcenter stratesy "If this works and outsourcing takes off and Netren ter is at the center. I think all of Netscape's competition is going to be forced to react," nane said.

But if the strategy fails, Netscape will be no worse off than it is now, fighting to maintain its position, be said. II Industry editor Joe Maglista ontributed to this story

It's not a comeback!

He helped created the technology that made Netscare Commun tions Corp a major force in Internet development. Executive Vice Developt Many Andrews told Computerworld source editor Carol Sline and industry editor for Maghitta how the new approach will revitalize the firm.

CW: How critical is the Netcenter internet portal site? ANDREESSEN: It's a big deal. We look at the company as a twin-engine set, and we need both engines. I think it's going to be very successful, and it certainly needs to be successful.

CW: Can you elaborate on the focus of the compa ANDREESSEN: The software [half of the] business is very focused on the category of compa nies we call ESPs Jenterprise service providers! and ISPs [Internet service providers). So the software goes to only large busy nesses, to service providers and

(The second half.) the Net center service, today is very highly consumer-focused. And we're now going to be adding a very strong business to business component to that, but a los of that is through partners! What we're looking for is leverage.



enter is highly

ANDREESSEN: We're taking a partnership-based approach. [Unlike Microsoft, we're not going into travel services. . . We're not a car dealer. Those industries wil

strategy for Netcenter

CW: How does

what you're trying to do with Netcen-ter differ from

what Microsof

and some of the

other sites an

be seeking to partner with us because we're going to be the alternative to Microsoftl. (1 The full interview with An dreessen is available at www commutumental com

us as a fundamental seeding Online this week

acted a couple of

rs ago against crosoft, as op-

sed to now, how

ness picture

ANDREESSEN:

The big difference

is if we could

charge for Net-

scape Navigator.

like we were doing two years

ago, we could put more re-

search and development into

client software. We could be

charging what we would think

is a fair price for it. (Today:

Netscape Navigator exists for

would Netscape's



Can someone please tell me how long Tarry's Lunch Truck' has had his own page on the intranet?"

NET bjects

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nts help you easily add powerful functionality to your sitesuch as online catalogs, merchant con nections, and "shopping cart" features.
Partners currently developing e-commerce components include IBM, ICar, INTERSHOP. Breakthrough, and The Internet Factory

lest of both worlds HTML. Work the way you want. NetObjects Fusion generates design-centric pages with pixel-perfect ion, and text-based HTML with ultralean code. Or use any HTML editor to write your own code

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In this issue

- SAFE STRAFFGIES

- map to new h
- on venders pasts by as for NT, even as users to stability and scalab

- HEVIEW CENTER

Prudential sinks \$100M into notebooks

Policy sales more than doubled during pilot

mem

By Kim Girard

force

PRUBENTIAL INSURANCE COMPA ny of America has hundreds of offices scattered across the country filled with independent sounts - most of whom are all but tethered to a hodgepodge of PCs when not on sales calls. That is about to change as Prudential commits \$100 million to make its sales force

mobile With its sales force armed with new IBM ThinkPad aSoFD potebooks, the Boston-based insurance giant expects to see a significant increase in profits if the results of a pilot project hold up for the entire sales

weeks to days, and commis-

sions increased by 153%, the

Now, an agent on a sales call

can use a notebook to erab all undo,the,minute insurance

forms and brochures that detail insurance plans - and use

homegrown software to do pre-

sentations. With information

available immediately, the agent

can make a sale faster, fill out

the forms on the notebook and

company reported.

DEAL SEALER

other products.

Lotus Notes database. IBM Global Networks is providing dial-up access and LANs for

larger offices. Barbara Koster, Prudential's chief information officer, said the project will help improve limited access to key information and lack of communication among agents and manage

Prudential plans to invest \$100 million in 12,000 note books, network services and training for about 1,000 field service workers per month. The project, with an expected completion date of mid-1999, will bring the company's field employees under a standard hard ware umbrella, supported by

GOALS OF PRUDENTIAL LAUNCHPAD 8 Provide a common software and hardware standard across

the organization

s Give all users in the field notebooks to take on sales calls 8 Consolidate help desks; simplify upgrades

s Give all agents equal technology benefits Backed by CEO John V. Sci-

one help desk, for the first time cutella and buoyed by improved *Before, we had little control over what [the agents] were buy remote access technology and the plummeting price of noteing," said Christine Ludwig books. Prudential moved for Prudential's vice president of ward last May with a six-month field technology, "If somebody's milet of soo agents that showed brother-in-law was selling PCs. impressive results. The number and it's an off-brand, that's of life insurance policies that what they'll bux" agents sold more than doubled Prudential would supply the turnaround time shrunk from

software and then deal with the help desk headaches. The company realized it could save thou sands of dollars by developing applications for one hardware platform that could be upgrad ed and maintained as a common system, Ludwig said.

Larry Tabb, an analyst at The Tower Group in Newton Mass., said the plummeting price of notebooks, coupled with thin-client and multimedia software improvements, is driving typically technology-reticent insurance companies to finally take the plunge with

file them electronically. That seals the deal in days instead of mobile systems weeks. Then the agent stores al But Prudential's investment is unique because it is a comer shared database that agents plete commitment to a project use to find likely customers for instead of spotty purchases or upgrades for dispersed agents. The new nosebook-based sell-

said Ann Purr assistant vice ing system gives agents E-mail. president at Life Office Manage Internet access, electronic acment Association, an Atlanta cess to policy applications and a based insurance association C



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into a triumph Call us today tell-fre



By Laura Di Dio WINDOWS HT security is getting

That's the assessment of too security experts following their discovery last week of yet another security vulnerability in Win

down NT that leaves the operatine system wide open to password denial-of service attacks on virtual private net-

morrie At least major security breaches have been found so far this year by so-called "whitehar backers people who look flaws to expose rather than exploit - and

By Bob Wallace

and Laura DiDio

an encryption scheme

mechanism

The anomaly, which Cisco

quietly acknowledged on its

World Wide Web site, is to the

data encryption standard (DES)

It causes the firewall to revert

In practical terms, reducing

from its normal 56-bit key

scheme to the lesser 48-bit key

the length of the encryption ke

from 56 bits to 48 bits means

"knowledgeable hackers can, on average, find the right key (to

break the firewall's encryption

suld be able to find it with a



World Wide Web pages (see box The latest glitch cropped up

sion of PPTP - not the actual protocol itself - is so severe that "there's oo real way to fix it." added Peter Mudge, director in Microsoft Corp.'s implemenof the Lopht group, seven tation of the Point-to-Pointwhite-hat hackers based to Tunneling Protocol (PPTP).

free as part of the Remote Access Service in Windows NT protocol standard instead of Mi 4.0, said Bruce Schneser, head crosoft's PPTP, IPSec was de cryptographer at Counterpane signed by the Internet Engli Systems, Inc., a Minneapolis-"We found several major security flaws in Mi-

> rick, the company's vice presdent of IS, said although Mi crosoft has always responded servers." Schneier "very promptly" when they have approached the Redmond Wash, software maker with problems, they still won't expose Metrick Printing's NT networks to the Joternet.

businesses to use the IPSec

Microsoft has acknowledged the flaw io its version of the PPTP protocol, Microsoft said if it working on a fix that it ex-

MOREONE INF

Cisco firewall bug hits encryption

> Flaw reduces security level, opens door to high-powered hackers true of-bit key." Cisco said in its are wide open for plundering by

Firewalls are international AN INDEPENDENT SECURITY FIRM ing's version of a medieval caslast week discovered a flaw in tle's most and drawbridge. Cisco Systems, Inc.'s PIX fire-Once the firewall has been comwall that leaves it vulnerable to promised, all the network data high-powered hackers using - including files and E-mail random combinations to break

HOT FIREWALLS What security technology

do you plan to buy in the next 12 months? Encryption 43% Firewalls

intrusion detection, 30% Single sign-on

firewall's was the third most widely used.

malicons backers devastating impact on network The flaw affects the PIX Prisecurity. For any rogue hacker vate Link, on to and including or organization seriously inter Version 4.4.6. An optional feaested in corporate espionage. cracking 48-bit keys is not diffi

hacks.

dependent on strong DES en-

cryption in their (virtual net-

works) should be very coo-

cerned because most end users

have implemented the PIX fire-

wall assuming they have 96-bit

One PIX user expressed con

"This bites," said an MIS

anager at a large midwestern

financial services firm who re-

quested anonymity "The Cisco

cern about the product's prob

key encryption," Fabro said.

ture in the firewall, it will be businesses create virtual private oetworks over the Internet using tunnels encrypted with

FUTURE FIX The company said the first reg

ular release containing a fix for the problem will be Version 4-2.1., which is tentatively slated 33% for release later this month. But Circo officials said the schedule is subject to change. Fixes for 28% Version 4.1 haven't been school related 27%

Meanwhile, the impact could be widespread Cisco has shipped roughly 10,000 PIX firewalls since late 1995. And a recent survey of 415 users conducted by the Computer SecuriOther Windows NT glitches found this year include:

tion but: Lets unauthorized users log on remotely

· Password-grabbing Trojans: Let hackers replace system Dynamic Link Libraries, causing untold demage and

· Internet Explorer hole: Can capture user IDs, passwords, NetBIOS host name, NT domain name and IP address. . Another Internet Explorer hole lets a malicious Web page automatically run any program or issue commands

. Denial-of-service attacks: SYN Flood. Teardrop 2 and Ping of Death can crash or slow your NT Server.

pects to post "soon." But Miofficials densed Schneier's and Mudge's asser tions that its PPTP protocol couldn't be found

Another IS security manager at a Washington-based defense contracting firm, who requested anonymity, said he has resisted pressure from his management to use the Macrosoft protoco because he was aware of the

The security manager said he "fought tooth and nail" to use other vendors' virtual private network products rather than Microsoft's PPTP.

"I've known all along that Microsoff's PPTP is subject to dic tionary attacks, and it's vulnera ble to weak passwords as well

> ty Institute and Zona Research PIX firewall is supposed to se lor found that Circu's DIV cure our octworks, and now ! find out it will potentially let hackers have a big 'look-see' in-to my network. This could no

> tentially pose bug problems for "This could potentially have a us, since our networks contain lots of personal and comporate financial data

> Customers who need to up grade their PIX software imme diately may contact Cisco's cult at all," said Mark Fabro, di-Technical Assistance Center to rector of the advanced security obtain interim software. But the assessment division at Secure vendor admitted "the interim Computing Corp. in Torooto. software hasn't been subjected which performs "white-hat" to full testing; it has a greater chance of containing serious *Businesses that are highly bugs than regular release soft-

> > "You'd better believe I'm call ing Cisco technical support for the fix immediately," said the anonymous PIX user. Despite the vendor's warning, the fix had better work, be said. [7]

MORFOW INF



said. 'The security problems in NT will only worsen as Microsoft increases the complexity of

the (operating systeml. Microsoft's ver-

without a user name or password.

creating unforeseen security holes.

on a user's system

in the coffin." be said. NT's popularity has made it the target of an increasing num has of backs "Hacking NT has clearly be come a favorite blood spor among the backer under-ground, observed Mark Fabro,

The new problems are the nail

director of the advanced security assessment division of Secure Computing Corp. in Toronto NT can be 'a secure operating system," but only if network ad ministrators are well versed or current security issues and have undated their NT servers with the latest fixes and patches, he

> Servers with more than four processors won't help NT 4.0 users, but vendo keep making thom. Page 59

Cisco is making

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So, what are you

running on these days



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Net upgrade speeds the presses Anticipated Intel action

Poor productivity. near-missed deadlines prompt overhaul

By Bok Wallace

nonactory maner and is Alm Calle bases it was time for a network upgrade when he saw overworked employees, plunging productivity and nearmissed printing deadlines Network outages and molasses-slow response times were dangerous to the company's core business: distributing promotional catalogs to 2.5 million book-club members month. "Our bandwidth problems were putting stress on meeting our schedules and resulted in delays of materials delivery to printers," recalled Gallo, assistant director of network services at Doubleday in

Garden City, N.Y. So starting this January, Doubleday began replacing its shared Ethernet network in fayor of a Sito poo Laver 1 muting switch network from yCom Corp It plans to use Gigabit Ethernet in the near future

That \$150,000 figure may be a small price to pay considering that missing contractual print ing and postal deadlines by just a day or so could have cost Doubleday hundreds of thousands of dollars per incident. Gallo

"They are definitely at the forefront of their industry with their use of advanced networking technology to improve the sduction process," said Rich Huff, a systems analyst at Docu-Labs. Inc. a Chicago-based consulting firm that specializes in electronic publishing. *Doubleday's effort is part of

Corrections

e to a reporting error, a story in the June 1 issue, "Crystal balls focus on Interet," misspelled the name of elicore's vice president of innation networking. It is

In the May 11 issue, a story titled "Click here for gas" iscorrectly identified a partner in the World Wide Web site



nes threatened the catalog producer's core business

an emerging trend toward the implementation of more robust networks to handle larger images brought on by increasing use of higher-resolution color.

"I could save a 300M- to 400M-byte file to a serv-or, have a cigarette and a cup of coffee, come back to my deak and maybe the

said Huff, a former network anabot and technology manager at printing giant Uarco, Inc.

production Doubleday's process requires that high-resolution snapshots and digital pictures of the book covers be placed in the servers. Then, artists, illustrators and copy editoes enhance the images using graphics and editing packages. The problem was the number. size and frequency of files transmitted between employees Macintoshes and Doubleday's

An Item in the May 11 "Inside Lines* column mischaracter ized the intent of the gover ment's Arpanet project. The project, a precursor to today's internet, was developed as a way to link defense researchers so they could collaborate on Cold War

An April 15 in Depth story "Tip sheet: Internet prod tivity," incorrectly fished the price of the Inquisit news ser vice. It is \$12.05 per month.

Windows NT server clogged the firm's narrow Ethernet pipes Many workers were spending up to three hours on projects that should have taken only one. Gallo said. "There was a lot of pressure on employees to work more hours to meet deadlines," he said

"I could save a yooM- to 400M-byte file to a server, have a creatette and a cup of coffre come back to my desk and maybe the saving would be done," recalled Jay Jahrsdoerfes creative supervisor of illustra tion at Doubleday. "We also lost work from network outages." The 3Com Layer 3 switches

used in the upgrade provided fatter pipes, which sped the transfer of high-resolution images of books, illustrations and copy by 10 times or more. It now takes about a minute to save those same files. "We can obviously now do more work and we're calmer

human beings," Jahrsdoerfer said. 'We don't seem so pres sured all the time like we had before [the upgrade]."[]

A March 30 IT Careers story. Top employers for IT train-ing," misspelled the name of one of the employers listed. The correct name is Pacifi-Care Health Systems.

In the Dec. 29, 1997/Jan. 5. 1998, issue, a story tided "It's payback time" incorrectly quoted a Computer Sciences Corp. survey about U.S. information technology budgets The survey showed that infor

unlikely to cause waves

FTC's focus expected to be relatively narrow

By April Iscobs and Kim Girard THE PEOPERI TRADE COMMIS-

rion will meet today to decour an "enforcement action" about "nonpublic" investigation. which is widely thought to involve Intel Corp With last week's media re-

poets predicting that the FTC will pursue a relatively narrow case against Intel - reportedly based in part on issues raised in several private-sector suits the conventional wisdom ex-

tion to companies or threatened to cut them off if they didn't

share intellectual property Former FTC Istigation direc tor Steven Newborn now a partner in the Washington law firm Rogers & Wells, said this first case against Intel by the FTC may only be "the first

> Other possible targets for the FTC might include Inte's plans to place more technology on its



pects minimal impact on Intel and even less on PC makers In fact, users might see, and racts he said welcome, a slowing of the desk Newborn and loe Sims, an top hardware life cycle.

The only concern looming is

"Any ruling that impacts In tel's product cycle could be a two-edged sword," said Dennis L. Reedy, vice president of information systems at Home Federal Bank in Knopville

"We'd welcome the slow down from constant upgrade." he said. "On the other hand, the (currently rapid) upgrade cycle lets us save money cause the company can buy outdated hardware at lower prices. Meanwhile, lawyers familiar

with the workings of the FTC and antitrust issues speculated that a vote is likely to happen this week A majority of the FTC's five commissioners would have to

vote to favor of filing suit The case reportedly would be narrow in scope, focusing on accusations that Intel has refused to provide key informa-

motherboards, thereby making it more difficult for competitors to offer complementary prod-

> antitrust lawyer at Washington based Jones, Day, Reavis & Pogue, said a narrow focus by the FTC would be unlikely to make any real industry waves The FTC wouldn't comment but Intel spokesman Chuck Mullor said the company has been cooperating with the FTC since last September

Charges that Intel used its dominant position to stunt competition are echoed in two other suits that renoctedly have attracted the FTC's attention ■Compac Computer Corp backed off and settled a potentinfringement suit it had filed against Packard Bell several years ago after totel reportedly sided with Packard Bell. ■Intergraph Computer Corp has sued Intel, charging that

Intel refused to supply Intergraph with key development in rmation unless Intergraph turned over its own intellectual property. A judge has granted a minary injunction ordering Intel to supply the information to Intergraph.

R/3 users await warehousing features

say ac is closs to shipping data warehousing software that users of its R/1 applications are clamoring for. But much of the key functionality hasn't been seen yet even by SAP's beta testers.

The Business Information Wareh software will be released to about 70 R/s users worldwide at the end of the month. It has changes sought by beta testers, such as Unix support and an

easier-to-use report builder But it still won't have everything SAP has promised: Company officials confirmed that software for archiving R/s data and synchronizing feeds from mul tiple data sources won't be ready until the general release, due in August, And support for using desktop query tools to analyze the raw data stored there won't come until later

Beta tester Dow Corning Corp. is waiting for all the additional features before making definite plans to use the ware housing software

Until now, prying data out of R/3 for analysis "has been hellishly difficult."

- Steven Tirone, Advanced **Manufacturing Research**

The company's R/3 team is "really get ting pushed by management" to deliver better data analysis capabilities, but the beta warehousing code was "just too un stable" to bet on, said Cynthia Hartz manager of R/3 reporting at Dow Corn ing in Midland, Mich.

A key question, Hartz said, is whether SAP's software will have enough archiv ing support and detail-level analysis pow er to take the place of Dow Coming's mainframe-based data warehouse Bay Networks, Inc., another beta site

hopes to largely replace an Oracle Corp. based data warehouse with SAP's soft ware. But that "is a little lit of guesswork," said Neil Greenleaves, a syst architect at the Santa Clara, Calif., net working vendor. *Until we get this month's release, there's not enough to show users to get them interested.

NT OF FUNCTIONALITY

The analysis capabilities SAP has shown at the data mart level look "fairly rich," Greenleaves said. But the archive-oriented corrational data store due in August will likely have just a taste of the funcionality users wants to see, he added. SAP has "significant plans to upgrade

that [piece]" in future releases, said Kevin McDonald, warehousing initiative manager at the German company's U.S. unit near Philadelphia.

But Business Information Warehou should be able to handle detailed trend analysis off the hat through function

data marts, he said. relational data analysis server, a deskton reporting tool, predefined data extraction routines, interfaces for third-party analyeix window and a set of standard reports

Until now, prving data out of R/s for

analysis "has been hellishly difficult said Steven Tirone, an analyst at Advanced Manufacturing Research, Inc. in Boston. The warehousing software should make that easier, he said Michael Cromar, chief financial officer at CATX Canital Corp. in San Francisco. is counting on Business Information Warehouse to help unlock his R/s data "With R/s, suddenly we have a system

where all the data is in one place." Cromar said. The only question is how to get at out and look at at." Querying across different R/s modules now requires procedural coding that can take a full day or

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Sprint pitches all-in-one network

D. Most Mombile

SPRINT CORP.'S plan to create a national network to combine voice, data and video in an integrated network promines to help large businesses boost bandwidth on idemand and cut network service

costs by half, beta testers said.

costs by fair, beta switers audic.
Kansas City, Mo-based Sprint announced integrated On-Demand Network (ION) last week. The network till be tested later this year by several large companies, including Hallmark Cards, lic., also in Kannas Civ, and Housten.

based Sysco Corp., the nation's largest distributor of food products.

distributer of sood products.

ION will extend Sprint's Asynchronous Transfer Mode (ATM) network to each customer site and will let a company install a network hub using proprietary software to connect its voice, data and video networks to that ATM network, according to analysts and Sprint officials.

officials.

The technology's pretty exciting, but the important thing is our ability to leverage telecommunications advances to

our customers and to do it with more bandwidth and theapers' and James Miller, this information officer at Hallmark, which has 20,000 employees. The opportunity to take data traffic foe electronic ordering, wore traffic, and video and Internet traffic and put them on one high highway is very exicing."

Sysco

Hallmark CIO James Miller: ION eventually could cut the company network service costs in half

Hardin said he expects to see cost sivings, but "our desire is to use this technology to communicate more and better with our customers."

Sysce distributes food to about 270,000 restaurants and hospitals through 70 centers. The company may use ION to help deliver more product photos and descriptions.

Miller said ION eventually could cut Hallmark's network service costs in half and could allow similar cost savings for 8,000 independently owned shops and mass retulers that buy Hallmark products. In all, Hallmark has a wide-area network with 40,000 shops, wholesalers and others.

ION will allow a small Hallmark shop to combune three telephone lines for voice, data and fax into one, with bondwidth up to 100M bit/sec., eventually over some type of Digital Subscriber Line, Miller said.

Starting in two weeks, Hallmark will test placing all its voice and data traffic over ION. That traffic is now on self-cisted ed T1 links that use frame relay. After that, about 7,000 voice lines from corporate beadquarters will be combined to allow long-distance dialong without using Southwestern Bell.

Sprint has already leased lines to customers in Kansas City, Dallas, Denver, Chicago, New York and Tampa, Fla. The company is in discussions with several local providers to reach another 60 cities next year.

Sprint is working with Cisco Systems, Inc. in San Jose, Calif., to develop hardware for ION. Bellcore in Morristown, N.J., is building software. O

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NØRTEL NORTHERN TELECOM

SYMPOSIUM

FRANKLY SPEAKING Misinformed masses

FRANK HAYFS

EAR 2000 MISSINFORMATION IS threatening to bite you again. This turne it's not programmers who underestimated how much time your year 2000 fix will require. Or IT vendors whose products aren't quite

as they promised. Or business partners who supply you with parts and services - and may have supplied you with a load of baloney about their own year 2000 readings

No this one's the buggest year 2000 Big Lie. The one that still regularly shows up in newspapers and magazines and TV shows. The one that insists the year 2000 problem of fects only mainframes

MESSES IN D Hard to believe that old chestmut is still around, eh? It seems like you've know better since, well, foerver, You're reads

to scream if somebody reminds you yet again that year 2000 bugs are about data and applications, that they affect PGs and networks and hardware and software at every level, that mainframes

haven't had a monopoly on millennium problems for two decades. But let's face in With less than 19 months left before

that ball drops, a lot of prople still believe the year 2000

isn't their problem because Not of people still believe the year 2000

isn't their problem.

they use only PCs Case in point According to a recent Gallup poll, 75% of small businesses haven't made any year 2000 repairs yet year 2000 problem is very serious. If and 50% don't plan to act any time styrnied because their bookkeeping sys soon. The poll showed only 6% view

the problem as "very serious." What's wrong with these people? Nothing - well, nothing besides mir formation. What they know is what they read in the newpapers. And when a newspaper article says newer PCs are

safe, or a Compag ad claims its comput ers have no year appo problems, they believe at Well, fine, you grumble. They're idsots. Come Jan. 1, 2000, their applica tions will fail and their businesses will

collapse. They'll suffer the cons ovences of their own stupidity, and good riddance. You've got enough grief fixing your own systems to worn about this crowd of dim bulbs - right? Unfortunately, no. Your 21st-century

survival depends on them. Because even if you've nailed down every year account issue in your organization. even if you've made sure the vendors and distributors and business nortners all up and

down your supply chain have cleaned up their acts on Monday, Jan. 3, 2000, you'll still need customers. Chances are, lots of your company's customers are among those millions of small businesses that don't think the

they go belly-up - or if they're samply

tems fail so they can't pay your invoices - you're in trouble, too. But, you protest, it's not your job to worry about customer stupidity. Is it? Ask yourself this: Who else in your or ganization is going to flag those misin formed customers? Who else is going to warn your management? Put bluntly, who else is in charge of spotting year 2000 problems - even if they're busi

ness, not technical, issues? WHILE CAM MELD

There are things your organization can do. A customer newsletter is an obvious place to warm of year 2000 risks. And your sales force talks to customers every day; that's a perfect tool to belp educate them. Even adding some year 2000 information or links to your company's Web site may be appro-

For once, doing the actual year approwork probably won't be up to you. That will be the job of marketing and sales, the folks who work with customers. But make sure somebody addresses your customers' year 2000 misinformation. Because what they don't know can

burt you.O Høyes is Computerworld's staff columnist. His Internet address is frank hayes

Domain name solution pitched

The Clinton administration on Friday rethat a nonprofit organization be created no later than Sept. 30, 2000, to take charge of domain name adnistration. The organization would represent world be interests, but it should be U.S.-based to remain se to the Internet Assig ed Numbers Authority tech nical staff responsible for such functions today, said the National Telecommunications and Information Adion of the Com nits.doc.gov). The arg on would ov tion of the internet root server system and set policy for allocation of IP number grants. The World intellec-tual Property Organization would work with the private ter and government to develop a method for re-ving trademork disputes over domain names

Sabre books Sun's JavaStation

in a boost for the topid not Sabre Group Holdings, Inc. in San Francisco last said it will resell San Microproteons, Inc.'s Innels estweek computers as an option for customers we use its Qil-Access travel reservation authorse produ-The Qil-Access package runs on more than 19,0 dealtops used by lotels, airlines and other business n, British Airways and Cathuy Pacific, Fina

Motorola to lay off 15,000

- about 10% of its worldw next year and consolidate or

SHORTS effort to curb costs. At the same time the drastic cu were annument, the troubled Schumberg, ill.-box company said it expects a second-quarter operations loss and will take a protex charge of \$1.95 billion.

Journal adds exec recruitment

The Wall Street journal's careers World Wide Wah a corears.unj.com) is partnering with executive search from Korn/Ferry International to let midlevel managers sign up to be considered for new jobs. After fills right by to the checkered the name jobs. After this out a questionnessin, users who sign up on the sits get a free estimate of their market value and a write-up on what kinds of jobs and corporate cushwest might be a good fit. Korn/Forny said the efficiency of the internal

Laws needed for 'net privacy

met industry's privacy efforts "have fel there is needed to protect consumers," the select of what is needed to protect consumers," the selectal Trade Commission concluded in a report re-sent to Congress last week. The FTC called for new we to address Web sites that collect personal inforon from children and said it will issue re done for adult privacy protection this summer. The not adds to the political pressure for new internet way laws, which most industry efficials oppose or the grounds that self-regulation is making once

Switches enhance virtual nets

panies reluctant to run lifeblood i its (1774) because of the lack of pre

hes announced last week by Claco S ms, Inc. The equipment uses a technology called ulti-Protocol Label Switching (MPLS) that will let se-se providers offer users VPNs that most established rice providers offer users VPNs that most established performance guidelines. MPLS is an emerging stan-dard that is nearly complete. Analysis predicted that savice providers will begin to use 68°LS in order to offer enhanced VPNs this fall. Expirement makers that support MPLS include Lucent Technologies, Access

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stions, Inc., Ericsson, Inc. and Ga Customer: World Economic Forum, - Geneva

Prime contractor: USWeb Corp., Santa

Highlights: Manage and enhance an advanced, Internet-based videoconferencing network for collaboration among world business and political leaders. The secure World Electronic Community network uses Intel Corp.'s videoconferencing technology for high-bandwidth business applications

SHORT TAKES IBM is attacking its rivals in the PC server market with a plan to sell directly to large cus-towers. . . . in a stock purchase deal valued at \$7,8 mil-line, Cyberquard Corp. in Fort Lauderdale, Fiz., last week agreed to acquire Area Systems, Inc., a rivately held information security consulting firm in on Jose, Culif. ... Tellabs, Inc. in Lisle, Ill., unced plans to purchase Clean Corp. in icam, Md., for \$7.1 billion, Tellaha makes matches ice and data carriers, and Ciena pre



HP pushes users to dissolve business, IS service barriers

SEATTLE

THINK SERVICE, not just not works. That was the unavoidable message for users of Hewlett-Packard Co. management software at the OpenView Forum International '98 confer-

ence here last week. But service-level management

ing IS quals to busi ng us in that direction

is easier to describe than achieve, attendees said. The goal these days is to mesh business and information systems objectives through service management. That means

specialists to focus on overall performance, such as how well orders flow through the com name not how many packets zio rough network and servers.

We want to pull together information about our network and distributed systems to make sure we can build and ship lift trucks," said Phil Mc-Clurg, operations superinten- Charlotte, N.C. dent at manufacturer Crown Seujoment Corp. in New Bremen Ohio. "We can't make as much money if response time

To help, HP enhanced its OpenView tools for managing networks, everens and applications with high-level views of service quality. IS leaders, con sultants, HP and vendor purtnees described steps and potholes on the hard mad to service management

mons, but the advice is hard to First, IS groups often work in refighter mode, reacting to individual problems with limited staff, expertise and budget instead of teaming to attack per-

Middleware messaging: Nowhere By Craig Stedman

MIRROR PROPERTY AND PROPERTY AN ing to combine transaction management software with disruted object technology. But adding the third leg of the middleware stool — application-toapplication messaging software is a harder trick For example, BEA Systems

inc. last week announced a Boucher said. package that combines its Ture do transaction manager with an Object Request Broker at bought last year from Dustal Equipment Corn

But BEA's My product initial ly won't include the Summyole. Calif., company's MessageQ ware as had been expected.

"Right now, it's more like Mo " said Karen Boucher, an analyst at The Stundish Group enal. Inc. in Dennis. Mass. Other vendors trying to ine different middleware technologies into one product, such as IBM and Iona Tech-

nologies, also haven't tied in messaging software yet, she

Messaging products put appheation calls in queues so users can do other work while waiting for responses from distributed systems. But blending them with sit and wait transaction managers and Object Request Brokers is "kind of bairs."

Nonetheless, Boucher and other industry observers said My and real object-transaction managers should let users take advantage of the flephility of object technology and still make

sure transactions go through Dee Copelan, a managing at chitect in the international delivery unit at DHL Worldwide Express in Redwood City, Calif. said My is expected to belp grease the skids for deploying

cations across DHL's high ly distributed network. My is due to ship next month and will cost \$600 per user. D.

tate technical malifies and busi ness expectations. Third, service-oriented tools, expertise and methodology are scarce

"Shifting IS goals to business goals is a wrenching process, but HP is right in pushing us in that direction," said Paul Edmunds, a sensor network ana

hist at Duke Energy Co. in *Bringing together separate specialists is tough enough, having to understand user needs in different cultures and lenge," said Ron Chlebek, net-

the OpenView software division at HP in Palo Alto, Calif. lostead of just talking about prod-

Barriers to effective network service-level management

Difficulty measuring service levels Difficulty defining/negotiating service levels

inadequate service management processes Inadequate products/tools Lack of experienced staff

ary results of April 1998 survey of 160 organizations; ma

Airlines Data in Stockholm. HP's strategy to differentiate OpenView from rival end-to-end management suites depends on this service focus, said Olivier Helleboid, general manager of

work manager at Scandinavian address changing roles in IS organizations as these managers

connect with the business." But OpenView users need more than slideware. "HP needs to show some real implementations of end-to-end serrice-level management," said Charles Hebert, president of consultancy Southernview Tech nologies, Inc. in Kennesaw, Ga. D.

going to be enough [64-bit] soft-

ware available to take advantage

of Merced" when it ships, said

Tony Massimini, an analyst at

Semico Corn in Scottsdale.

HP, which is considered to

be the furthest along in sup-

porting Merced, last week said the delay wouldn't affect its

plans. The company will contin-

ue to churn out at least two

more versions of its PA-8000

chin line: the PA-Stoo and PA-

8700, said Jum Carlson, world-

wide marketing director for IA-

64 architecture at HP. C

MORFONLINE >

ucts this year, HP is "trying to Intel's Merced delay rates a yawn have delayed mastive migra

By Jaikumar Vijayan

so worst is Merced is delayed? Many attendees said they agreed with the service ser Armed with speedy server processors - and alternatives to Merced for Windows NT and Unia systems -- users greeted Intel Corp.'s six-month delay of its much-hyped 64-bit chip with barely a yawn.

"I don't see a Merced delay formance issues. Second, 15 hurting us at all," said Kevin Danahy, manager of intranet computing at Bedford, Mass. based Milipore Corp. There is so much hardware in the marketplace right now that we are running very comfortably with what we have."

The delay won't affect systeens wendors much either Merced was originally supposed to ship in volume by the last

quarter of 1000 but now won't ship until mid-2000. And servers based on Merced won't become widely available until the fourth quarter of that year. The 64-bit Merced, which Intel is co-developing with Hew

quantum leap in performance tions to the new architecture bepared with today's 12-bit Intel chips. Merced-based sysyoud 2000 anyway, according to tems are supposed to run Unix users and analysts. and Windows NT applications Software availability. The real cough well concern is not about the hardware at all but whether there is

ALL QUIET

Other issues muting reaction to the delay include the following: Sluggish demand for serven with four or more processors (see chart). That suggests users haven't fully exploited the capabilities of existing PC

*The upcoming release of two more powerful Intel processors - the Pentium II Xeon and Deschutes. Servers based on those chips should give users enough performance to

keep them satisfied until Merced's release. Options such as 64 bit RISC Unix servers from HP, Sun M: crosystems. Inc. and 'Durital Equipment Corp. ·Most users haven't started

planning migrations to Merced lett-Packard Co., promises a And year 2000 projects would News of Merced's delay comes at a time when worldwide intel-based

PC server growth is the slowest in two years: nts by CPU arch Q1 1997 / Q2 1997 / Os 1997 1 1 Q4 1997 1 1 Q1 1998.

143,672 137,120 140,650 182,562 151,055 **Dual-processor capable** 183 770 227 BOY 262146 305,665 285,405 Quad-processor capable 56.790 51740 52 691 65 457 53 945 Eight-way (plus) 46 processor capable



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December Date

Encryption debate roiling

* FBI director to meet with top guns at Microsoft, AOL and others

By Lawra Di Dio

FBI Director Louis Freeh tomorrow will meet with about a dozen high-tech executives to listen to their differences in the long-running debate over exporting encryp-

tion technology. The controversy over current U.S. policy is as complicated as the encryption algorithms

themselves. The government position. champs-

oned by the Federal liureau of Investiga tion, is to continue prohibiting exports 66-bit keys to counries outside the U.S. and Canada unless a specific

warver is granted by the U.S. Department of Commerce As an alternative, the sovers ment would allow state-of-theart 128-bit or even bleeding edge 246-bit key technology out of the country if law enforcement agencies get a backdoor "key" to unscramble the en

crysted data transmissions.

potentially result in lost busi ness to foreign competitors that aren't hamstrung by the same steppent emost controls And privacy advocates object to the covernment having the ability to unlock

and monitor sensitive personal and corporate data, in duding medical records, tax information, banking transactions and o

ganizations' trade secrets. An spokesman

for the FBI said the meeting between Freeh. U.S. Sen Dianne Feinstein (D-Calif.) and bush tech vendors isn't so much a negotia tion, but a discus sion in which both sides can air

The high-tech executives expected to attend the meeting inchide Microsoft Corp. Chairman and CEO Bill Gates: America Online, Inc. Chairman Steve Case: AT&T Corp. CEO Michael Armstrong, MCI Communica tions Corp. President Tim Price:

U.S. businesses said the limi tations are hidicrous and will Gorp. CEO Irm Barksdale: and Sun Microsystema, Inc. President Scott McNealy.

No one believes that either aide will change its stance, but industry watchers are exuberant that the meeting is taking place at all. It comes on the beels of the newly introduced F.Privary

fore the current constructional

session ends in August (see re-

lated story, page 49).

The bipartson E-Privacy bill, in-2.U we strong test beyond Sens Porck Lesly (D-V) and John Ashcroft (R-Mn.), leta American businesses use and export encryption products of all strengths. It also prohibits the government from establishing a nandatory key escrow system. Ed Gillespie, executive director of the Americans for Con-

puter Privacy coalition in Washington, said he welcomes tomorrow's meeting as the start of a long-overdue dialogue This is one in a series of meet ines. If both sides mally listen. st will be helpful. We need to get past this stalemate, which serves no one," Gillespie said. O

Will Visual Studio play well with others?

Re Sharon Goude New ORIGANS

as miceosoft coar, begins to tout the upcoming version of its Visual Studio development too quite and its emphasis on inter operability across platforms users and analysts are warting to see if the marketing promis-Act, which sponsors hope will es actually most the enteropie's get a full committee hearing be-

At its annual Tech Ed confee ence here last week, Microsof showed off features of Visual Studio 6.0 geared to build applications that work with dis parate databases across severa operating systems. Traditionally, companies that

use Microsoft's tools had to write their own software to link to enterprise databases, but Visual Studio 6.0 will use OLE for Databases and ActiveX Data Objects - middleware tech nologies based on the Compo nent Obsect Model - to handle those links

Microsoft has long held that Wandows was the only impor tant platform for enrporate de velopers to build on. That's changing now that the company is trying to move its desktop dominance to span the middle and back-end tiers

wants the job done before he

Finally, *Microsoft has real ized that we need took that can

be used throughout our system, not just part of it," said Everett Johnson, vice president of appli cation development at Salomon Smith Barney Holdings, Inc. "You don't nnly have Windows in your system. We realize that," acknowledged Paul Gross, Microsoft's vice president of developer tools, during his Tech Ed keypote address, "NT didn't

mean the demise of the mainframe. (So now) we're focused Microsoft brought in approximately \$100 million with its Visual Studio too suite in 1997- the product's first year on the market

on integration.

Besides its new enterpriselevel database connectivity Visual Studio 6.0 also builds on Microsoft's Distributed Network Architecture (DNA), DNA is a set of electronic building blocks for middle ties communication

that lets developers focus on the butiness logic when creating programs that access information from databases, rather than get mired in coding grunt work. Chris Porch, head of systems at San Diego-based Innovative Desktop Solutions, Inc., which huslds software for San Diego

County and Encison Communications, Inc., said Microsoft is moving in the right direction "The enterprise has Oracle and Unix and IBM. If Microsoft wants to run there, they've got to interoperate," Porch said

Users take calculated risk in gearing up for NT 5.0 Dr Sharen Gasdin on his company's network. He

NEW CHIERWI

MICROSOFT CORP. is pushing users to get ready for the arrival of Windows NT 5.0, despite the fact that no one knows when it will ship And some users are getting

ready so the expected huge mieration job won't mertake them when the time comes "I'm working now to make

the upgrade more simple," said Patrick Garrett, principal systems architect at PacifiCare Health Systems Inc. in Cypress. Calif. "My goal is to go home and enend time with my a se old at the end of the day If I want to do that then. I'd better work on it now

Garrett is merging all his users' various domains into one master list, which he hopes will by simplify PacifiCare's migration to NT 5.0 later next year. Microsoft Executive Vice Pres-

ident Stree Ballmer told an audience at the company's annual Tech Ed conference here last week that now is the time to get ready to upgrade their systems, prepare for the migration to NT 50 and work on new applica-

Microsoft hasn't given an official release date for NT S.n. but many observers expect it by the second quarter next year.

Some users and analysts said they wonder if it is a waste of time getting ready for something that hasn't even made an official appearance yet "How can you make a decision to go to something that's not there?" asked Danny Bap-

tista, a senior project engineer in MIS technical services at Gap, Inc. in San Bruno. Calif. "I'm going to wait and see." Despute similar warm third-party vendors such as En-

tevo Corp. in Arlington, Va. and FastLane, Inc. in Lawrence Kan., are already shipping tools to help users with the magration from Windows NT 4.0 to NT 5.0 or to build applications for the new version And some corporate users are

Garrett is using FastLane's Phoenix tool to reconfigure has Windows NT server domains which regulate end-user access

starts migrating to NT s.n to make the move much easier "If I can do my planning and lay the basic groundwork today, Garrett said. "There's a lot to do to get there in smooth fashion. They pay me to keep the system running, and that's what I'm But Garrett, like most users

isn't going so far as to start writ ing applications that are specific to NT cn. "That's a calculated risk we're not seeing many people willing

to take yet," said loe Homnack, head of Hommek Systems, a technical training center for Microsoft products in Boca Raton. Fla. You want to be first to market, but all your bets are on when it will ship."

> Sensor editor Carol Slines contrabuted to this report.

GATEWAY APPROACH "I wouldn't call this true inter-

operability," said Evan Quinn, an analyst at International Data Corp. "Ultimately, Microsoft wants new applications written to run on Windows NT. They want to treat the rest of the world as a gateway. They want to provide access to what you've already not on you can take advantage of it on NT."

Visual Studio 6.n is expected to ship in early September. Microsoft showed off some of the key common features but didn't give much of a peek at its pow erhouse tools. Visual C++ and Visual Basic. Not just a collection of those tools, Visual Studio is an umbrella package desurned to eventually meld them into a common environment.

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Will U.S. sanctions restrict Indian coders?

Impact on offshore programming unclear Be laskumar Viayan followed by companies that

RECENTLY IMPOSED U.S. SAINCtions have some lawyers advisine clients to review plans to ship programming work to Inde

. The tisue is important because scores of U.S. companies today have multimillion-dollar outsourcine arrangements with Indian programming shops.

ian and military purposes.

Any delays or disruptions

caused by the sanctions could

have serious consequences -

particularly for companies get-

ting year 2000 remediation and done in India

Precise answers to questions

about restricting offshore pro-

gramming in India aren't avail-

able. Officials at both the Com-

merce and Treasury depart-

ments said the asyncies still are

working on guidelines to be

do business with Indian com-

But companies affected by potential restrictions said they don't expect major changes. Two Indian outsourring shops said they didn't expect the sanctions to impact their existing or

And two U.S. companies with offshore contract programmers The Commerce Department has licensing jurisdiction

over the export of "dual-use" goods and services those the government considers suitable for both civil-

in India said they haven't heard about any restrictions on their VALID CONCERNS

can't imagine anyone coming up and saying. 'Oh, by the way you are going to have to break that off in the middle' because of the sanctions, Spehl said. Union Parific Referred in Omaha uses Indian contract neogrammers on-tite for year

Indu that falls within the Commerce Department's purview That is because the Corr

merce Department has beens one consolution over the expect of "dual-use" goods and services those the government cor siders suitable for both civilian and military purposes.

For example, computational fluid-dynamic software that measures airflow around obiects could be subsect to much greater dual-use scrutny because the software could be used to measure airflow around cars or military aircraft. Snead

QUESTIONABLE EFFECT Mike Spehl, a spokesman at Consolidated Edison Company of New York, said the utility which has offshore contracts

with an Indian firm, has seen no impact from the sanctions imposed May 11, and he added that he doesn't expect any. "I

Indian software exports to U.S.

Indian year 2000 ervices exports to U.S

>000 remediation work. There hasn't been any word on how the imposed sanctions may im-

nact Umon Pacific's ability to continue to work with its Indian contract unrivers said famou Fox. derector of information

Rauer Meyer, an attorney a the San Francisco law firm of Thelen, Marrin, Johnson & Bridges, said he was examining

More than \$150 million o TCS's \$267 million in revenue last year came from work farmed out by U.S. firms, TCS is one of India's largest software export firms. () whether export controls could

On the continuous-speech desktop dictation front, several new products are bringing users closer to the day when

affect ordinary software. "Our

fear was that if such export was

not actually prohibited, [the

users of that softwarel could still

he forced into licensing proce

dures that could "-sult tr

months of delay Stever said

*So far none of that has hap

pened, but the Department of

Commerce is still telling the world they are working on the

Indian firms, while acknowledge

ing that they have been setting

gueries from anxious clients

insisted that the sanctions, as imposed, have had no effect or offshore work

"The economic sanctions so

far are only aimed at loans and

and to India dealing with eco

nomic and infrastructure devel

opment," said James Thomas, a

vice president at Tata Consul

tancy Services (TC\$) in Dallas

"There is absolutely nothing in

the sanctions at this poort that

has an impact on software de

velopment work," he said.

SO FAR, SO 0000

Companies pilot speech recognition systems hour high expertations this will They help make a good

▶ Goal: Greater volumes with smaller staffs

By Nancy Dillon

STARTING IN AUGUST, a select group of Northwest Arrimes Corp.'s frequent fliers will be able to book, exchange and refund tickets through natural language dialogues with digital telephone agents.

The digital agents are part of an interactive voice-reservation system purchased from Minneapolis-based Via World Net work, a subsidiary of Andersen

Fifty employees at the St Paul, Minn-based airline are testing the system. In three years, it is expected to grow to serve all call-in reservations Al Lenza, Northwest's vice

president of distribution planning, said the system is smart enough to handle unexpected interruptions and to understand contextual phrasing such as "I want to leave a week from

He said that the "couple of

The outstanding questions are

cause for concern, though, said

David Snead, an attorney a

Williams, Mullen, Christian &

Dobbins, a law firm in Wash-

ington. The impact could quite

possibly be very sumificant for

companies shipping software to

hundred thousand dollars' Northwest is paying to customize and implement the system is justified because it will allow greater transaction volwith no additional staffing

Today, no matter how well

we sell-through." Though desktop dictation products dominate the media spotlisht, analysts said telepho

ny based applications are when most Fortune 500 companies are first investing in speech

The freturn on investment for telephone apps is very fast we staff, we lose phone calls due to competition for cussaid Bill Hills, an analyst at Ab tomers' time," Lenza said. "We erdeen Group, Inc. in Boston

HOLO YOUR TONGUE

aparywide adoption of desitop speech recognition of for dictation is unlikely soft the end of cust year:

- > It takes a long time for users to attune software to their voices and to fine-tune system vocabulary > Custom applications won't be routinely speech-enabled
- until at least 2001 ➤ Most internal technical support groups can't handle
- speech recognition issues > Frequent upgrade costs required through the end of 199

impression on callers, and help us speed service and un they're cheaper for routing

Hills said market leaders such as Nuance Communica tions in Menlo Park, Calif., and Applied Language Technologies Inc. in Boston help clients build systems for stock trading, package tracking, banking and retail

Sears, Roebuck and Co., for example, is using a speech recognition system from Nuance in orest and transfer cus tomers who call its 750 retail stores nationwid

The system has increased store-based call-volume canacities by 400%, said Ian Drum mond, a corporate information systems spokeswoman for the

Hoffman Estates, Ill-based re-And best of all. Drummond said, "it has enabled stores caught in tight employment markets to redeploy operators

elsewhere'

companywide PC deployments of the technology become appropriate (see chart).

DI AVEDS Philips Electronics N.V. in the Netherlands is expected to an nounce FreeSpeech 98 the month. And Belgium-based Lernout & Hauspie Speech Products released Voice Years in late April. Also important to the market are IBM's ViaVoice and NaturallySpeaksog from

Dragon Systems, Inc. in New State Farm Insurance Co. in Bloomington, Ill., is one majo company graring up for wide spread adoption of speech recognition technology. The insurance giant already

ton Mass

has several copies of the IBM and Dragon products in its cor porate law department, on the desktons of users with disability ties and in the latter stage of testing for rollout to the human resources document-processing department D



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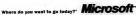
it helps users focus on the task, not the technology.

It helps you go from fireman to architect.

Windows, Office, BackOffice and Visual Studio provide an Ideal foundation for your Digital_Nervous_System because they're integrated. They also work with an industry's worth of applications, so incorporating new software solutions is easier. Taking advantage of hardware advances is easier. Integrating Internet capabilities is easier.

Of course, none of this will help you sleep better at night.

You'll just lie awake thinking of more important things.



IBM eases R/3 implementation on AS/400 servers

Move part of effort to push server line toward ERP

By Jaikumar Vijayan

tam is making it easier for users to deploy SAP AG's R/3 state on its AS/400 midrange servers

The company on May 26 announced a preconfigured platform called Ready-to-Run R/3 for AS/400E servers. It features bundled R/3 software. DBx/400 database software, management tools from

SAP, networking hardware and peripheral products such as printers. The slea behand such bunding as to speed the implementation process, reduce initial costs and take some of the complexity out of installing R/3, and David Petersen, president of Midrange Open Business Stratees, Inc., a consultancy in Rochester

"Customers are learning that an intes grated package like this is money in the fi bank because of all the stuff they don't

have to do" to install R/3 and configure hardware and networks. Petersen said. "It saved us more than a month of work," said Mike Morgan, vice president of information systems at Starwood Ho-

work, sain size Mongan, vice pressorm of information systems at Starwood Hotels and Resorts in Phoenix. The company owns Westin Hotels and Resorts and manages or franchises 220 hotels in 24 countries and has 31 more planned. Starwood recently went live with an

Starwood recently went live with an AS/400 installation running SAP R/3 software that aimed to being systems at different sites to a common application and hazdware platform. The installation took just 100 days — at least partly because of the integration, Morgan said.

DOTE SAP ON THE MOVE Large SAP installations can sometimes

take six months to a year. But vendors such as IBM, Hewlett-Packard Co. and Sun Microsystems. Inc. today offer rapid SAP implementations that take only about three months.

SAP implementations that trace only about three months. With the latest asmouncement. AS/400 users for the first time will also be able to host SAP's R/s test, development and production environments all

on a single AS/400E box.

Previously, SAP licensing terms for the AS/400 required users to run their R/3 test and development environments on one server and their production environment on another AS/400 server.

The reason for that was SAP considered previous versions of the AS/400 to lack the power needed to host all three environments on a single box.

-

than \$500,000.

IBM's latest move is part of its continuing bid to push AS/400 servers into more enterprise resource planning application environments.

Though the company announced support for SAP R/3 on the AS/400 two years ago, it has been available mainly on its highest-end AS/400 boxes. The latest announcement brings SAP

to the entry-level AS/400E Model 170 server.

Prices for the eight new configurations start at \$100,000 and go up to just more





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Solutions for a small planet

VW Mexico buys 50% stake in seeman outsourcer to ensure service

Property Mysters ONE WAY TO EMELIAE GOOD SET vice and a fair price is to com the company working for you

- or at least half of it But in 1995, Volkswagen Mexico had even more strategic reasons for busine to% of ses tems outsourcer Gedas North America: the need for speed

and innovation By all accounts, VW Meroco's own 180-person information technology group was more hund. More than one-third of the staff was dedicated to main uning legacy systems, many of which were so old the compiler licenses on the muchines had expired. Another third kept the data center oning. New develop-

ment was at a standstrill. NG STRATEGY

If the Mexico plant was to have any shot at all at winning proaction of the new Beetle, an entirely new IT infrastructure war vital But VW's semine management didn't realize it - at least initially

The [original] deal was to take over their data center and run it as is," recalled Stefan Wiesner, Gedas' chief technology officer, "But we said, o. Let's take their people and throw away

the data center." Carbo proposed migrating virtually 1 all of the automaker's key applications to Unix-based client/ server systems, which would reduce ongoing maintenance costs and increase data accessi

Additionally, Gedan agreed to complete the work in just under two years, which would give VW a full year to work with the systems before Beetle production was scheduled to start in March of this

"Cades ment into VW with a proposal to change everything," Wiesoer The more VW officials stud-

sed the proposal, the more they came to see how pivotal IT was to achieving their business plan, recalled VW Cluef Information Officer Hans-Jurgen "In the end, we changed our

nhilosophy and decided that IT it is a core competency. That's why Volkswagen Mexico owns 50% of Gedas," he said Speed was another key driver The speed of change in the IT area is different than the

speed of change in our core industry," said Gerhard Rieder. VW Mexico's finance director Continuing to run IT from within the automaker "would put a brake on IT," he said.

The software mantra at VW became: "No buos, no rework, next project,"

- Sahine Ahraham

systems manager, Godas Morth America

management consultant Potes

Render-Sumuel and the sector partnership "also gives VW sub-What VW has managed to do is bring in market based pricing, gain access to IT expertise and being in the discipline that an external services compa-

ny brings," he said. ONEY MATTERS But 'on the darker side, there is

stantial control

still a neofit motive for Gedas." Bendor-Samuel said. "As long as they're eiving them market compatible pricing, Gedas is al lowed to make a profit." Today, VW Mexico is Gedas larged customer. The automak

er has a \$100 million. seven year contract with Godas But so far, that hasn't guaran teed Gedas contracts with other VW operations around the world. In the U.S., for example, VW North America outsourced its IT operations to Perot Ses terms Corp. under a 1006 cor tract which is due to errore in

"We don't always win with VW," Wiesner said. In Mexico Gedas has estab lished IT operations in a factory hall adjacent to VW's Reetle

plant. There, in the shadow of Mount Popo an active volcano just a few miles away, Godas operates the largest Unix data center in Latin America. Like the nearby auti merts companies, all of

which are linked to Volkswagen over a fiber-optic petwork in the industrial park. Gedas wants to be viewed as "part of the business, just another supplier." Wesner said We're trying to

break the image of computer companies living in crystal palaces If a car maoufacturer can live in an industrial park, why can't a systems integrator?" said C



IT aids VW Beetle comeback CONTINUED FROM COVER 1 Production of the new Rec-

tle is big for the company, but the real goal is getting the right car to the right customer," said Hans-Jurgeo Bartels, chief ioformation officer at Volkswaper North America on Auburn Hills

Technology is so vital to that goal that Bartels' \$10 million IT budget of four years ago blossomed 350% to \$35 million. per war "VW decided wars ago," Bertels said, "that the Beetle was part of our strategic

Myh

This year, U.S. sales of new VW Beetles are expected to hit so.ooo. Last year, by contra U.S. sales for all VW models to taled only 15,000 - roughly the came unlume or one of General Motors Corp.'s largest dealerships.

Volkswagen is also counting on the new Beetle's immense consumer appeal to attract buyers for its pricier Golf and letta models. Both cars are built on the same chassis as the Beetle. Thanks to the new Sun million of those models can be custom-

configured here at a rate of Sco vehicles per day.

The increase of VW models production in Mexico couldn't have been done with the old technology," said Gerhard Rieder, director of finance at Volkswageo Mexico. "It was clear to us that without invest ing heavily in IT, we would not have been able to fulfill our

In 1995, the automaker in vested an initial \$10 million and entered into its seven-year Sino million outsourcing contract with Gedas North Ameri ca. VW also bought so % of that division of Grdas, in an unusu al equity partnership (see story

The major technology mitia tives undertaken by VW/Gedan so far include the following: Creation of the all-new auto mated factory information sys tem, which revamped VW's en-

ture production process. Migration of more than 40 mainfrague systems running IRM's MVS to Unix platforms and of all comprate data to Oracle databases

t. It looks like the truth it

Workers bridge cultural divide

By Maryfran Johnson PUERLA, MEXICO THE DEADLINE FOR the SAP AC R/3 support module had come what they do. and gone when the developers

at Gedas North America came to Chief Technology Officer Stefan Wiesner with a revised schedule. Another month, they said, was all they needed.

Wiesner countered with an unusual deal: Hit the new dead line, and earn an extra month's salary. Miss it, and forfeit a month of pay *Of course, I would not take technology proa month's pay from anyone, but

it was meant as a challenge," Wiesner explained. But to his great surprise, the 20 developers returned the next day with a letter - signed by

all of them - pledging to quit en masse if they failed. That taught me a very big lesson about Mexican culture said Wiesner, the CTO of

Gedas, the outsomer and metems integrator for Volkswagen Mexico. They are dedicated

workers and proud to be doing And yes, they made that new

deadline Now in its fourth year, Volkswagen's partnership

with Gedas has heen so intripo ing study in cultural contrast seeimils. tion for the soo information

volved. The top managers are all German, while the project directors, middle managers and hulk of the workforce are most-

"We are not trying to make a core of a U.S. or German company here," Wiesner stressed We're much more flexible than a German company. There are

no strict union rules here, and people are willing to work over-

Teamwork is no issue here in Mexico, but Germans tend to be very individualistic. We have learned a lot from each other" added Sahine Ahraham systems manager at

> about Swet everyone in the VW/Gedas alliance is trilingual, able to switch from

Smanish to German to English in the space of a sentence. All business meetings are beld tri Spanish, but if the topic becomes contentious or expotion-

al, they opt for English. Gedas spends an average of \$2,000 to \$3,000 per employee on training each year, which inlems. The hardest thing for cludes technology education everyone was realizing that both and language classes. In a counsides could have good ideas."

"Up to now, there has been

no downtime that cost us pro-

try where the aweaec IT worker earns one-fourth to one-third what a U.S. counterpart earns, that is a significant investment

The cultural diversity has re guired some creative manage ment. When the first Gedas technologists arrived from Germany once the outsourcing conact was awarded in 1995, one of Wiesner's first actions was to pair German technologists with Mexican counterparts in a "door-die" partnership that mixed

technical and business process All told be lost only one manager in the process, although ultimately about 20% of

the original data center staff left "It worked well - after a time," he said of the assigned teams, which initially ran unto a variety of communication prob-

eInstallation of SAP R/1 software for all financial and spareparts information. Conversion of 2 con users from an MVS-based mail syn-

tern to Microsoft Corp.'s Ex-Remediation of 6.5 million lines of code for the year 2000 date change, with 1.2 million left to finish this year.

DIDN'T SKIP A BEAT In essence, the company built a

completely new computing infrastructure, all without missing a day of production.

We did all of these changes during the day, as the factory was running and as year 2000 fixes were being handled," said Stefan Wiesner, Gedas' chief technology officer and project executive on the VW con plus continuous quali-One of the key reasons Gedas ty monitoring by a cobeat out larger outsourcers,

such as Andersen Consulting. was its insistence on changing almost everything about VW's systems - and many of its business processes as well.

We were also lucky not to do just an outsourcing process but to make a total jump in IT phiry," said Rieder, who is also chief of the Gedas board of directors.

Migrating 42 systems with 1,500 programs from main frames to lower-cost Units-based systems was at the heart of Gedas' proposal. Also key was the development of

objectoriented systems, including the factory information system and dealer communica tions system.

The software projects were completed in less than two years by a combined VW/ Gedas team of 200 developers using a highly structured "soft factory" approach. It rruse of software obsects across professe.

person staff of expert programmers from a separate ality assurance group "We're convinced that no one person can be completely objective about the quality of their own software code, so out

side quality assurance is de sugged in from the first day," said Gedat systems manager Sabine Abraham. The mantra at VW became:

"No bugs, no rework, next proj-Wheney mid ert" she said To encourage code reus Abraham also offered special duction," he added. Before the

bonuses to developers. factory system went live in March 1997 there were crashes, but by the time the first new Beetles

Both measures - the quality checks and software reuse said off. Reported systems errors plummeted by 68%, literalsaving the company thou-

sands of dollars per minute in If the mission-critical factors stem were to crash, for examole, the lost revenue would amount to \$20,000 per minute, rolled off the line a year later, the system had had a year to work out bues of a different sort. The proprietary on line factory information

system (FIS) controls which cars are produced on the factory floor based on incoming orders, which are sent to Germany from all VW operations world made and then funneled to the FIS in Mexico via SAP R/s.

Built in C++ and Sm the FIS also executes on the fiv anufacturing changes but

just-m-time parts availability and promotions. A Fourth of tuly sale in the U.S. might prompt a line reconfiguration to produce more red, white and blue cars, for example VW officials credit the system

with boosting the plant's production canability from 200 to 600 Beetles per day and reducing missing-parts problems to mear arro

Another benefit: VW ma agers from around the globe can review all manufacturing data via a company intranet Taken together, VW's new in-

formation technologies afford the automaker the ability to resound to consumer demand more rapidly than ever before - and reduce costs. The flexibility |of the sys-

tems) allows them to adjust more quickly to demand. Since they're getting quicker feedback on what they're selling, they can adjust production lines more quickly," said Bob Schnorbus, a Detroit-based analyst at J. D. Power & Associates in Augora

Hills Calif. That, in turn, greatly low inventory costs and vastly in-creases Volkswagen's ability to keep its Beetle-adoring public

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Remote Components Transaction List Transaction Statistics



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COMPUTERWORLD SITORE OF COMPUTERWEELS Web-based CUSTOMER SERVICE embraces some, alienates others Plus

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Internet

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CONFERENCE & EXHIBITIO JULY 13-17, 199 M CORMICK PLAC CHICAGO LLINOI

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FROM THE EDITORS

It's About Time

t's taken perhaps half a they're beefing up customer decade for the Internet to service by adding head count become business-friendly. and/or knowledge-based sys-Now it's got to become contems that resolve common sumer-friendly - a much problems and questions (see story page 8). They're also

tougher proposition. A nasty surprise awaited handing over chunks of çash leading-edge Web merchanes to fellow Web sites that atthat just slapped together tract certain types of visitors, storefronts in hopes of makin return for running conine bie sales with minimal text-sensitive ads and promooutlay and overhead. Those that survived learned it takes

tions or serving up links (see story page 14). To many consumers, the WEB

remains TEMPTING and scary, like a Dungeons and Dragons MAZE

ingenuity, persistence, technical servy and plenty of buman resources to find, get and keep customers on the Web. The borroon line is that connamera expect the Web experience to be faster and easier - and, ideally, cheaper and more fun - than buying in a resular store. Otherwise, why bother to mess with it?

E-tailers finally seem to be waking up and smelling the virtual coffee. That's why

They are personalizing the shopping experience, using information about customers pervious purchases and brows ing habits (see story page 18). But to many consumers. the Web remains tempting and scary, like a Dungeons

and Dragons mate. Around the corner may be treasure or an unprincipled monster who'll take your most valued possessions — your identity and credit-card number -

Ammerce COMPUTERWOOD

MARAZINES GOORP ENITED Carlo Catalo Alan Alper

sabeth Horwitt ART DIRECTRO Mary Beth Weld -Kimberlee A. Smith Natalie Engler Cheryl Gerber -Beverly Wolff BAFFIC/GRAI COCCURATER

Kim Pennett

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OFF THE BOOKS 22 What Did You Expect! 22 EDI Fellacies

ing on — tools or programs to address privacy regulation and express opinions," said Truste executive director Susan Scott. This may well be their last

chance to do it voluntarily be free the Federal Trade Commission pages in, enacts various pending privacy laws and referent them.

and use them against you.

is already hurting mer-

chants in the pockerbook

latellipost, an incentive-

driven. Web direct-mail ad

vertising vendor, has found

that of customers who de-

clare their buying inten-

to provide personal and

credit-card information.

Markowitz Various industry groups

tions, nearly 75% change

their minds when they have

according to President Steve

have been working on ways

to give Web users more con-

trol of their personal informarion on the Web. Truste is

one example (see story page

4). Another is the P3P work

ing group within the World

Wide Web Consortium,

which has been developing

took that allow users to de

termine ahead of time just

what information a Web site can extract from their

The Commerce Deput

ment is holding a privacy

month that will look at the

progress of the industry's self-regulation on privacy

issues. The forum will give Web merchants 'a chance to

say. This is what we're work-

forum at the end of this

Customers' lack of trust

THE Exchange



Web Traffic on Hyperdrive

DSL could beat ISDN as Web consumers' broadband technology of choice, but carriers have some technical and ROI issues to resolve

200%, prompting the local

exchange carrier (LEC) to ex-

pand DSL into 40 cities and

14 sears. "Our biggest chal-

lenge today is trying to keep

up with the tremendous de-

how that information might be

BY CHERYL GERRER

espite obstacles, telecom industry big wheels are betting hard on DSL as the broadband technology that will free electronic commerce from its bandwidth constraints. They may have wagered well - early Dieital Subscriber Line (DSL) providen have already carved out promising market niches. | mand," said Greg Gum

When I'S West Inc. director of US West megabit launched its range of DSL services in November, for Much of that demand example, 1,714 customers present and future - comes signed up the first week. Orders exceeded projections by

from the electronic commerce sector, according to Gum Direct sales appearel and care manufacturers, for instance, say they want to use DSL connections to reduce current online charges and cur costs of traditional communi-

cations advertising and sales "

venues by moving them on line, Gum said. *Forty percent of US

West's current [DSL] subscriptions are to consumers replacing 56K moderns," Gum said. The other 60% are home/office, small business and bigh-technology compa

ny teleworkers who need remore LAN access, he added. As a pensistent connection over existing copper lines. DSL offers two main advan tages over existing broadband services: higher speed and

> One DSL pioneer, Santa Clara, Calif.-based Covad Communications Co., offers

-CommercePULSE

used. Members that meet Treate's criterie get to disp um. The Mea is to Its saad on their sites. Truste has 110 men by which a site lets visi

about a third of which act

New York Times and Wired

and ZDoet are in the prec of being certified, Scott said, and infessel, and Lyces are "good bets" to be certified

Still, that's just a handful out of the vest Web galaxy that ischades 500,000 to 1 million (depending on who's doing the

COMMERCE BY NUMBERS

SHELF LIFE OF BANNER ADS Two weeks, or 200,000 to 400,000 Impressions Source Above Value and Inforce studies

WEB AD REVENUE PER USER 1997: \$15 2000: \$39.30

Source Renchmency Corp. Education Stationard Co. education

\$1777

DSL services that range from 144K bit/sec. two-way access priced at \$90 per month (flat rate) to a 1.1M bit/sec. two-

way connection for \$195 per Web commerce experience. month. Industry observers say DSL The LEC's DSL services turner homes, small businesses DSL has an and teleworkers who want to upgrade from 56K bit/sec. analog modems or cut the high usuee-based costs of Inregrated Services Digital Net-

bit/sec. ISDN connection costs customers about \$500 a month in per-usage phone UNLINITED ACCESS And DSL has an edge over its chief competitor, cable modents. "Copper pair goes

work (ISDN) lines. A 128K

more places than cable," noted John Girard, a Gartner Group, Inc. analyse in Stamford, Conr In February, Covad set its sites on electronic commerce,

launching a parener program for Internet service providers (ISP) to bundle DSL with a variety of business Web services. DSL could enhance the

EDGE over its chief competitor.

cable MODEMS it can go more PLACES. users stay online longer to do

electronic commerce filtering or to research a broader variety of purchases before they buy. The increased bandwidth also encourages Web content developers to enhance Web sizes with CD-quality audio and video, rendering electronsc commerce more appealing, noted Lou Pelosi, Covad director of marketing.

DSL in its present form

does have some drawbacks. For one, it is distance-constrained within three to four miles of the local loop. The farther away DSL users are from their telephone compa m's central offices, the lower the speed. Consequently, the technology is available now to

only about 40% of the population located in metropolitan areas near telephone compa nies' central offices. As DSL matures, it will become available over longer distances. Further, the initial invest

ment may discourage small ISPs. "There's a high up-froor cost to consert to the LEC network. It's more than \$20,000. But we look at it as necessary to provide our value-added services," said Joe Peck, DSL product manager at Concentric Network Corp. an ISP in Capertino, Calif.

Another impediment to DSL adoption is that some LECs are leery of cannibalizing their T1 customer base. said John Hunter, an analyst

at TeleChoice, Inc. in Verona.

NJ On the positive side, leading PC, telecom and networking companies seem to be coalescing around two International Telecommunicarions Union (ITU) DSL grandante the egablished Asymmetric DSL and G.Lite, a PC version that is

now awaiting ITU approval If PC manufacturers can creare consumer and busines awareness of DSL value and get DSL PCAs on the market soon, that will expand the market for electronic commerce twofold, Hunter noted

Geder is a freeligier writer in Aingston, VI.

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stop in, Scott said. in CIT has been more 1,200 Web sites to de The report will be p home from a se

mak's 1987 s

o Iulio Gomes, the Internet and securities trading are natural soul mates. Trades long ago were reduced to digital bits, says Gomes a former Forrester Research, Inc. analyst

turned Web securities brokerage adviser and best practices arbiter. Convenience. speed and information access - the 'ner's big strong points - have always been critical brokerage differentiators. And the Internet builds on the brokerage industry's obsession with technology: Those firms with the most potent networks and most efficient processing have traditionally dominsted, Gomez points out.

The numbers substantiate Gomer's gusto. A year ago there were 27 online beokerages; today there are some 52 firms wheeling and dealing on the 'net. The total number of trades per day grew from abour 95,500 in first-quarter 1997 to 153,000 by the fourth quarter, according to Minneapolis investment banker Piper Jaffray, Inc. Online trading commissions are expected to triple from last year's \$700 million to roughly \$2.2 billion by 2001,

the firm projected. Gomez, 36, landed on Wall Street in 1985 as a bond trader, working his way up the industry's hierarchy before starting his own brokerage in 1992. He joined Forester in 1996 as a senior analyst specializing in the Internet's impact on financial services. Sensing the 'nex's pervasive potential, he med Gomes Advisors (www.comesn.comlin mid-1997 — a consul and 'net-based advisory service to help Internet brokers improve their competitive

riate firms. Gomes Advisors' Insumer Broker Scorecard, a quarterly ranking of online broken, has already achieved some nonoriety among a click-through on someone that is get-

gayy in ventors. It receives some 20,000 page views per day. And on the consulting side, the firm has already been retained by

more than 10 brokerage firms. Gomez recently sat down with Compaserworld Em merce Editor Alan Alper to discuss his Web strategy and the implications looking for a of Internet trading

well-rounded erce: You dose ous as port it brokerage" part portal. What do you

Gemez We stand in between the consumer and the financial service provider as an arbiner of quality.

PCC: You're also sending proof nors to the brokurages and re ferral focs. In there a conflict of interest? mer: If someone comes to our scorecard looking for information about oneach brokerage firm. line brokers, we think that it makes perfect business sense for us to turn over than highly qualified lead.

standing and investors locate the most ap-The brokers really like these leads. It's a great enhancement to their standard banner advertising, where they are hoping for

quote or reading a news article. They like the fact they are capturing people that are really in the process of

choosing an online broker. low much in your referral feet GOMEZ That's confi-"We are denrial. It costs [Inter-

net brokets] \$200 to get an account that on a present value basis is worth \$1,000. Our referral fee is a small

fraction of the \$200. Emmerce: Hew do you do

Gomez Advisors' JULIO GOMEZ: your ranking? Gorney It's a combina tion of factors. We do as much as we can through visiting the site. Sometimes we open accounts. We ask the brokers to provide us with a demo account so we can view the trading pages and all the secure pages at the brokerage site. We also send out a fairly de tailed questionnaire. In the end, we compile about 115 different criteria points for

> rce: Which oritoria are most critical? Gomer: Our overall ranking takes into ac count cost, ease of use, customer confidence, online resources and relationship services. So we are looking for a well

JULO GOMEZ rates the 'net's best securities brokerages while advising traders how to improve their lot. Conflict of interest? No, just another way to cash in on the wild, wild Web's gold rush.

WEB TICKER

tounded brokerage

We also allow individuals to sort the firms based on which of those five caregories is most important to them. We have detailed customer profiles that hely investors pinpoint what broker qualities to select for hyperactive maters who are core-conscious and performance-conscious the eriton investor who invests almost as a hobby; the life goal planner; and the one-map shopper. This is just the man marker.

Emmerce: Have there been any changes in the rankings?

Gomes DLJ Direct seems to have our criteria [figured out]; they're a four-peat [winner]. Some of the more interesting developments are the decline of Schwab's and ETude's ratings.

ETRADE'S 144.95 rade no longer looks ETRADE'S 144.95 rade no longer looks ETRADE'S 144.95 rade no longer looks the recourses in on longer market-leading. So it has opened the door for players like Sur-Trade, Waterhouse, National Discours Bonkers to come in and start to make some beckeys in our radinger, Another interesting thing we have seen over the past year in that no one some to be able to duplicate what ETRADE did — come in and just carwhat ETRADE did — come in and just carwhat ETRADE did in the source of the past what ETRADE did in the source of the source what ETRADE did in the source of the source what ETRADE did in the source when ETRADE did in the source when ETRADE did in the source has a source of the source that the source that the source the source that the source the source the source the source that the source that the source that the source the source the source that the source the

One exception is Web Street Securities.
Their Trading Pit does live [portfolio] updates in the center of the screen. On the right is an order-enzy screen so you can enter your trade while watching the market. You don't have to go to another section of the site. That contrasts with the 10, 15.

sometimes 20 different pages that it takes (on other sites) to check a variety of stocks, refresh some quotes, enter a trade, get a verification, check for an execution.

Emmerce: Asything counterbalities?

Schwah, Ridelity, to a lexor degree Quick. Re Reilly — here had sitter that were grown and grown, and committee and defined to add and financionality and services]. In the end, must have been that more has been less. Our bigger criticisms of Fidelity and Schwah have been that their sites are out of control and are navigational nightmanes. Fidelity has close that the substantial significant to the better fund ensire to use; We will think it; probably box to be,

Emmarge: What has been the impact on major fall-service brokers? Seems seen are still

Contex. In the each, the large from well get their arms atound how to see the large to leverage their broker networks [so] that brokers will neve some common better. (Then) there will be a thinning of the anks. You are not going to need a shirt of your bekens [so coded jo nover the same sumber of customers you [sow] have. Some of the firms that are purely based on relationship will lose to firms that have both relationship and relationship;

Emmerce: People with higher not worths are Real-hadis clips can be for orehalds more agt to want to brade over the ball. paterworld condemnence

on the infraction from softened from appear with least?

Genet. Well, they are concerned with that. They are [also] a little worned about the fact that [the laterned] is the de facto place.

to the local measures who is a few inventor. The key is going to be in advisory rook. How do you deficie automated financial advice, whether it financial planning or specific rook roommendations, without triggering all of the reporting and engolar to the commendation, without triggering all of the reporting and engolar to the control of the control

Emmerce: Now will entire brokers make monoy in secondoment whose decisions are some three based purely so prior?

Gemez: Of course volume is a critical issue, [as it] having a low-cost structure. ETude is making money and abowing significant growth and earning. The only way that these forms are going to be able to [win] is if they find a way to tie [up]

to tem in a tary one tary to tell their customers.

That will be done through personal-ination. [Today] you have to go and input your data, input your portfolio to get it to tell you news about your stocks. You know that is something that just dearn't beauty to be

An expanded version of this interview with RealAndia clips can be found at www.commercurald conferences. CUSTOMER SERVICE frience of C

WEB-BASED CUSTOMER SERVICE EMBRACES SOME, ALIENATES OTHERS

By Natalie Engler

s Web commerce goes mainstream, many retailers are finding our the hard way that they can't afford to stint on customer service. Jux ask Jim Coane, president and chief operating officer of New York-based on-line music revisible NOVE.

operating officer of New York-based online music retailer N2K, Inc.

When customers first flocked to
Music Boulevard, N2K's Web storefront.

to hudge-

Music Boulevard, N2K's Web storefront, Coase discovered that the company had seriously underestimated the level of service and support they'd demand.

With only six service representatives on staff. N2K had difficulty satisfying people who clamored for everything from information about the order process to help finding a certain albam contaming a lyric from a song they'd heard years ago-'We were surprised.' Coane recently admitted, "but people on the Internet wanted to talk to a live person."

Last Christmas, the problem took center stage. In the midst of the frenzied shopping season, NZK received at least 100 calls a day, and "we got totally bogged down," Coane said.

down, "Casae said.

This complaint has become a common or refrain among. Web merchants who refrain among Web merchants who will be considered to thought they could consomize on customer service for their site—whether by referring customers to an ejectronic—mail address or existing call center or by simply automating responses. Thoulde is, people come to the Web expecting to user imme and get a quick response. A list of frequently asked questions, a return to the old call content phone queue or a 48-

hour wait for an E-mail reply just doesn't cut it.

A lot of companies think they can just throw up [an] E-mail [address] on their Weh site, and that is customer service, aid Maria La Tour Kadison, a senior an-

alyst at Forester Research, Inc. in Cambridge, Mass, "But there oveds to be a mechanism in place to handle that E-mail" in a prompt, effective fashion. Sometimes that means an immediate response or personal attention. Often it means both. Sure, the loternest is a potential boon

to hudger-conscious companies. Accoeding to Foerseer, for a 5,000-employer in husiacus with \$650 million in annual sales, during the course of a three-year rollout the laseraer can reduce the cost as per customer contact by 43% and allow the company to provide the same level of service with 12.5% fewer customer a service saffler. Of course, those savings a

service states. O course, times aways
hardly add up if the husiness loses customers due to inefficient service or added
aggravation. All nos frequently, this is the
case.

"Up to this point, consumers have put
up with a lot," Conne acknowledged.
"They'we death with Jelt annoyance] be-

a new beest was the consumers of the consumers of the consumers online, and 'they want everything they want when they shop in a brick-and-mortar more, and more."

THE GOOD NEWS

On the positive side, the Web is providing Coane and other beleaguered customer support people with increasingly viable tools to provide faster, more efficient and hopefully more con-effective ways of providing that crucial customer

While it's true the promise of real call center/Web integration hit "a liattle bit of a hiscup" last year, due to security issues and the poor quality of voice over the Internet, in the meantime "data-centered-

type approaches" are coming to the rescue, said Robert Mirani, senior analyst

at The Yankee Group in Boaton.

These new solutions include selfservice applications that rely on knowledge-based systems, as well as software
and handware that give customers online
access to "live" customer service represervatives via a sentrate telebohore con-

nection or one-on-one PC. link.
Why sile service internet applications,
customers visiting a Web incera query
an intelligent database as they would a
live service rep. Erron if a customer cash
name the exact problem, he can type a
sketchy mensige ("my CD plyrer skips"),
and the database lossels him to the solotion ("it is a portable CD plyrer" "Done
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resolutions grown takes (see nowy page 12).

American France and Investment, Inc. is deploying obstave from Ringh-ware, Inc. to now foulf—and in contraster—a meany Cling a knowledge structure—a meany Cling a knowledge questions automaticilly, the system contrasted pro roote and amere F-mail questions automaticilly, the system responds to 60% of incoming questions within free seconds, and July Redgers, prouder of the Full Ringh Red of the Works, Nov. sounders and the Full Ringh Red on the members are more and the second of the se

duce its customer service staff from four to two, despite 2 400% increase in E-mail traffic. The software, Rodgers added, has paid for itself twice already, enabling the Mean turn to next page Continued from page 9 company to reduce the cost of an average mortgage by \$1,500.

ine, self-service alone may not be enough. said David Cooperstein, an analyst for telecom strategies at Forrester. "The goal should be to get agents off the phone and doing really good interactions

This means using self-service databases to intelligently answer simple and frequently asked questions, thus leaving the complicated queries to "live" customer service reps who can be reached via the click of a button

allow these so-called "cyber teps" to track a customer's path through the Web and push multimedia drawings, video and other applications to a customer's browser, while talking him through procedures This gives reps more freedom to upsell. educate and even help customers navigare the site so they can do it on their own the next time. Forrester calls this type of interaction "teleweh" and necdicts that releweb sites will handle 5%

of all live agent interactions in the next five years services company, has introduced a teleweb a human element.

voice and image communications system using Contact software from Webline Communications Corp. The application But while these savings sound enticallows financial advisors to click on a button on the company's password-protected Web site, which downloads a Java apoler to their browners and simultaneously calls a Parnam representative. Once connected, customers can ask questions, share

documents or spreadsheets and receive help navigating the Web To get the most out of these applications, however, customen still need to have two phone lines or a separate Internet connection for now. And while many have The most evolved applications then this setup at the office, few do at home.

To overcome this temporary obstacle, some Web merchants are taking an interim step and introducing one-on-one, keyboardto-keyboard communication

Sound of a Human Voice One such company is SoundStone

Entertainment, a 4-year-old, high-end music retailer based in Somerville, Mass., that has kinds in stores around the country. SoundStone is using CustomerNow. a component-based customer service system from SiteBeidge (formerly Social-Putnam Investments, Inc., a financial Science, Inc.), to bolster its Web site with

Customers who access the SoundStone Web size want to know they can talk to someone, said Kevin Sheehan, Sound-Stone's president. For the past year, the company has relied on E-mail, which Sheeban said is a "lousy way to communicate" because people want to interact in real time. Now they can, regardless of their hardware or software configuration

When a customer requests service at the SoundStone Web site, the SiteBridge software runs an autosensing process that determines the customet's browser type and version, hardware platform and enabled features. Based on those variables the software allows the customer to converse with a SoundStone customer service representative via a chat-type window

SoundStone saves \$2 per contact in telephone charges, creates a detailed paper trail of every customer interaction and is able to monitor the number of calls or hold, the number of calls being serviced and the service level. Customers can discuss Latin izzz with SoundStone employees and ultimately, Sheehan said, "recreare the days when they had that best friend in high school who knew all the lyrics." Some people fear these types of cus-

Please turn to page 12

Spoon-feeding Internet Newbies

each ead hour of support and page rape or then SHAMM a way.

USL: public packel not

(40,000 subserviers, many of whom are That is my pear ...

OW IT WORKS: When a d



10 COMPETERNOSED ENHERCE Joy 1 795 WER COMME

EC said. **EC done**.

It's easy to talk about electronic commerce, but a real challenge to make it happen. For more than 15 years, we've been implementing business-to-business EC solutions for enterprise last gain of small. Extending the wayply chain, building trading commutation, reducing cycle times, lowering costs. Helpings companies like you meltor the competitive advantage EC brings. We know how to get EC does. Cell Harboyet. In the first prace.



800-555-2989; 404-467-3000

Helping Consumers Help Themselves

a With Respect VSA

a URL: www.loc

a THE CHALLENGE To reads as many or Same as possible to the Web.

o THE SOLUTION: A knowledge have from

100: 2 test es

Continued from page 10 tomer interaction systems will drive up the cost of customer service by lengthening the time spent on each customer con tact. Indeed, for support-type and fre-

quently asked questions, that's a valid con cern. But for most companies, which according to Fortester are offering Internet customer service to create coovenience rather than cut costs. With access to live resentatives can be a buge asset. of well over \$100,000. And the technol-

That is certainly the case for Putnam. "We are not rolling this out as a costsaving issue," said Mark McKenna, senior vice president and group director of communications. "We are looking at it as a requirement to continue being a topflight service organization."

THE NOT-SO-GOOD NEWS

Sure, the market for these types of applications is poised to explode. According so research firm Aberdeen Group. lac., the total market for customer interaction software is more than \$1 billion and growing by 40% each year. And early adopters are litting up. Just two

years from now, companies expect to shift almost one-fifth of their customer service nesces from the phone and fax to the In-

er, according to a survey by Forrester. But these numbers cloud the reality or almost four months to be igo base. Today, four po ne stilling new belovens ets. Executed wants to inter

m THE COST: \$70,000 plus \$25,000 a year

= THE RENEFITS: The system has allest maked half-liment of instruction means ch good to take place through as 900 unbor and cost the company \$100,00 a year in telephone charges and pool asis, Kennead has also reduced the s ber of phone calls to costs

cent, but the company is waiting for

rance Corp. to release its upgrade

pasts by approximately 12%, re-\$25,000 a year.

tion management system and call center with software containing automated instructions and querying capabilities. Eventually, customers should be able to being up their order history, order status and details about when they can purchase the next album by, say, Erykah Badu.

That's why he's recruiting people from financial services firms and catalog retailen for expertise and is carefully evaluating technologies while investigating ways to more efficiently integrate the company's ogy is only a part of the equation. The online and off-line activities

All told, the effort requires an investment to the tune of "millions of dollars" in people costs alone, Coane said. In effect, "it will be like creating a new business," he added. "That's why we're so hell-bent on

doing it fast and doing it well." Natalie Engler is a freelance





thus we're still at the have of the mountain. At this stage, most of the companies we interviewed are in beta testing or very early rollout phases, and many said they are still working with their wondors. to perfect the product offeriogs. Evec more important to note, providing truly eolighteoed customer service taker more than a day or two of meditation. For most businesses, a six- to 12-month period is obligatory, as is an invest

Creation of knowledge bases is a lengthy process hindered by a dearth of "people who know bow to develop expert system rules," said David Stoltzfus chief technology officer at Logical Design Solutions, Inc., a Morristown, N.J., systems integrator that specializes in selfservice. Web-enabled applications. For companies such as N2K that are integrating call center applications, databases and their Web infrastructure, the

other is staffine

The music retailer has already increase the oumber of representatives it has from six to 33 and is in the process of creating a new service organization from the and up. The goal, Coane said, is to build a sophisticated customer informa-

issue is even more critical.

Vatural Tolection



CASTING a wider

Affiliated programs that tie advertising costs to sales rather than impressions enable Web merchants to

stretch their marketing dollars even further

BY ELISABETH HORWITT

event months ago, cloys, Inc. didded or seven in Web sheeting affiliants program, big time. Inmead of receiving 12% of the revenue their,
add generate for the up e-taller, affiliand
Web sites can now earn a whopping 25%.
We railand we were abouting outputs
in the first by being cheap, 'and Phil Palknook, 'wice president of markering. The
State Monica, Calif., company loops to
'incensiving affiliance in presented us more

and get more affiliates interested in the pro-

gram. The added.
So far, must have exceeded expectations on both frome. "Addition promose us more, a higher-berl pugger." Polithook reported, Further, the number of addition in the pregnan has goe from 20 to 60 since the cheeping and the control of the programs in all casis efficient." Published enthought The toy company is willing to pay \$10 for every \$10 size eight now because "berling power of the control of the control

Traffic, in a numbed, is why affiliated or syndicated marketing has become the hot new Web marketing vehicle.

The concept is simple. A Web site agrees by bonns to host a merchant's ad or trademark with



URL in return for an agreed-on percentage of whatever sales result from ad clickthroughs. No sales, on pay This is in contrast to classic banner ad rate structures. where merchants pay up front for how many impressions, or hits on an ad page, a site can delive

Because downloading an ad page in no way guarantees the user will read the ad, let alone click through to the size or buy a prod uct, classic banner ads tend to cost far more per sale than syndicated ads. said Brian Book. president of Book Interactive, Inc., a Burlington, Vr., Web marketing consulting firm.

Numbers that affiliated advertising pro ams reported bear this out. A recent analysis by eToys, for example, found that a \$40 sale costs \$20 or more, while the same sale costs only \$10 under the current commis-

sion structun Forrester Research, Inc.'s "Syndicated Selling" report, published in December, came up with even more dramatic numbers. Based on a survey of \$1 leading commercial Web sites, the report concluded that bannet advertising cost \$67 per sale, compared with only \$4.60 per syndicated marketing sale. The basis for these numbers is survey findings that Web merchants paid an average 9.2% commission to their ad affiliates and average \$27,000 cost per mil-Soo (CPM) for banner ad impressions and that banner ads had a click-through race of 2% and a conversion rate of 2% (or 400 sales per 1 million impressions)

Advertising affiliates tend to be small, revenue-hungry, nonprofit sites - clubs. chambers of commerce, specialized magazines and the like - that want to sell ads "as a way of paying the rent" on their Web site, Bock said. Such sites cannot generate the traffic of a Yahoo.com. On the other hand, they tend to be more niche-oriented and willing to go that extra mile - place an ad more prominently or next to related material - for an advertiser that offices the right incentives. That makes such sites

ideal vehicles for targeted marketing. Given such a plethora of advantages, it's on wonder 67% of the Formater survey's arspondents said they pay for ads on a commission basis, while 57% said they bought banner ads at CPM-based rates. Furthermore, 35% of respondents cited syndicused ad sales as the most effective kind of Web advertising space and placement, while only 16% cited "run of site banners.

Syndicated, commission-based sales are "advertising nirvana" for merchants, Bock said. "It eliminates the flop factor." Unlike their TV or magazine equivalents, syndicated Web ad campaigns cost the advertiser nothing when they miss their mark.

Doing syndicated ads anywhere but on the Web would be difficult, if not impossible, Bock noted. Cookies and embedded scripts in URLs allow Web mailers to identify the exact site and ad page that brought a visitor to their site, record the purchases made during the visit and then credit them to the right advertising affiliate. The closest equivalent to this in peans ads is fell-in cards that ask customers where they hourd

about a particular retailer or product. EXTENDING THEMSELVES

With little or on flop factor to contend with merchants can affined to cour a fur wider ad vertising net. CDNow, Inc., for example, currency has 16,000 affiliates posting its ads. Amazon.com, one of the pioneers of both Web-based commerce and affiliased

advertising, has 50,000 affiliages And smaller sites and stare-ups can af ford to generate brand recognition and rales. even on a right budget. Helping them along unlike the big guys, small retailen earth have the resources to build their own program infrastructures from screech - is a

small but growing affiliated ad industry Electronic commerce software vendors such as Vizweb, Inc. in Cambridge, Mass. and Be Free Corp. in Pittsburgh provide software to take care of much of the gruns work, Vermons Teddy Bear Co., for example, used Vizweb's Store 4.0 software to set up its affiliate program, generate the URLs with embedded scripes that affiliates embed in their sites and track sale and generate reports "on visits, orders, revcoues and who you're linked to." said Hillary Sulcov, Internet marketing man-

ager at the Shelburne, Vt., firm, "It's very "We tried advertising on a bunch of search engines for a lot of money and getting horrible results," Sulcov said. Please turn to ness page

carry to maintain."

YOUR AD goes here

in advertising. This is the is in practice of extentions on only forcesed sels — for a product or a tern presentes, for ease - m m es of a page that is specifically related

to what the of it selling Why do affiliate and or taing work well together? First of all, bungy affiliate sites can often b aded to run special ada on rest pages in bayes of

Dreg sales and of East Intere

and the same of the sale lors 150 types of Bales to its alle so affili

ates can customize pages to particular relegantes of books, proportions and so or Des Latence, program monager at With relating to give masters, "I can d their per that contented links are on n offective, meaning higher click sion, then run of the mill become sels. With become sels, you be: on sensone the Destinates, years int at very little connection with I the

sile heating the sell, other than broad do regraphics," he noted. Citizen's all regions, by combant, makes with West all "for a specific band or game, which : And COllege gloss its affiliates plenty of

he to display special ads. For a pie, Van Haden often got to effor steller the chance to order a new CO before It ne cot, Lances said. We set these es to promote this advance order, and the one that pale must grip a pigner mbood from Alex Van Helen, It's Be Ming a fene - [allifolos] lose it." And sell It, hig time.

- Distances where

II VIURI STORY AFFINITY MARKETING

Continued from page 15

While CDNow introduced the new set "We'd spend \$1,000 and get maybe four up too recently to judge results, Lannon orders." The program hasn't been around long enough to measure returns, she added.

FARMING OUT GRUNT WORK And for those that want to outsource pro

gram management, there's LinkShare Corp. In exchange for a small sales commission. the New York-based company provides software for sening up ad URLs, as well as sales tracking and accounting services. So far, about 80 merchants have signed up One of them is Omaha Steak, Inc., which has 100 affiliates in LinkShare's program

non, the program's manager said be is confident he made the right move

Increasing affiliates' profit gives them "the incentive to produce and keep on producing" more CD sales, he noted Then there are sites that offer special services and support to keep their affiliates hap-

ps; making them feel, in fact, like partners rather than advertising billboards. At a minimum, most Web retailen provide their af filiates with automated downloading of an ad URL at the click of a button, as well as sales tracking and reporting

themes," Lederer explained. BarnesandNoble.com, Inc. is another Web retailer using service to differentiate its affiliate program from those of revals. For example, an account executive is available to help affiliates set up the URLs and finenane ad placement. Seven types of reports enable affiliates to track sales down to individual books and analyze the effectiveness of ads, promotions and placement. And "co-

beanding" allows affiliates to leverage the bookstore giant's brand recognition A Barnes and Noble spokesman said the program was working well but declined to

ON THE DOWNSIDE

The big downside of syndicated advertising, marketing managers say, is it takes a lot of manpower, particularly if a retailer is providing customized affiliate services that go beyond customer tracking and accounting. "A third of our staff is now assigned to

marketing, consumer and affiliate relations Arruframe's Lederer said. "It really takes (a lot of resources) to achieve effective results. he added, with an exhausted laugh. But the results have been well worth the

effort. "We had test sites up to take a look at click-throughs and conversion rates, and my understanding is we're operating at three times the industry average." Lederer said.

The average for affiliate marketing prostrams, based on independent research from Artuframe, is 0.5% to 3% on click-through rates and 2% to 15% on conversion rates.

ing program rends to run itself with minirrul burnan intervention, provided the undedvine infrastructure is set up right.

mation services to affiliates primarily through its own Web site, "which we keep very updated," Lannon said. "It's really cost-

Fortunately, too, a syndicated market-

CDNow, for example, provides infor-

Honritt is a freekance uniter in Haban,

give numbers But some sites are going a lot further

WHO GETS THE CREDIT? Web storefront software such as Figureb's Store 4.0 can track sales from click-through to credit card, so merchants know who gets a com-



"We define ourselves as a service busi

and has realized an increase in online sales of about 15% since joining, according to Stephanie Heals, interactive sales manager at the online and catalog steak purveyor. One big boon LinkShare offen in members is access to some 4,000 prescreened.

nonprofit sites as postential affiliates. Finding the right affiliates - ones whose sites anial customers — can be tough. Pensuading them to sign up can also be a challenge, particularly if you're small or a comer in a competitive market.

A growing number of merchants are try-ing to lare affiliates with a bigger share of revenue. In April, for example, CDNow boosted the top commission paid to its Cos-mic Credit affiliate members from 5% to 7%. The online CD store also started of fering cash payments, as opposed to ston credit, to any site whose ads bring in more than \$100. Third, it introduced "a very involved series of bonuses," said Niles Lain-

ness, and we take it very seriously," mid Bill Lederer, founder and president of Amuframe.com, an art print and framing one that went online in April, "Unless you're prepared to listen carefully to their needs and provide a customized [advertising] solurion that fits for them and not just you. click-throughs and conversion rates will not be meaningful for either purty

In addition to handling all of the infrastructure and administration, Artuframe works with affiliates on ad design. For caample, it creates "special banners for some popular artists, as well as for certain art Moss.

product 1nfo



Advertisers note: Call 1-800-343-6474 extension 8249 for information about direct response advertising opportunities in Computerworld.

COMPUTERWORLD

A CYBERSTORE-Y

Education toys distributor looks to turn more of its site's browsers into buyers

BY ALAN ALPER

ew Year's Eve 1997. The ven first Web holiday season had just come and gone, and The Holt Co., a Waltham, Mass, distributor of educational toys and home and office furnishings, couldn't believe its good

Its 3-month-old Web commerce size which offers more than 20,000 brand-name educational toys such as Brio and Playmobil, teaching supplies and children's furniture at discounts of up to 50%, delivered more than 1 million page views. And despite minimal promotion, the site generaled more than \$50,000 in incremental reenue. Less than Holt had expected but no shabby, given the site's limited outreach.

Holt is now looking to turn a greater per centage of the site's beowsers into buyers The company's revamped site, which de buted in April, offers a look at where electronic commerce is heading: tight integra tion of Web and operational systems and more personalized buying experiences that numer customer levales, carate specialized communicies and enable up-relime and cross-selling op

If it all comes off, the small, privately held company believes it will have extended in Web reach beyond parents, eift givers and horse educators to volume purch whools, downer centers and facilities designers - not just in the U.S., where it does most of its business, but around the world "They redesigned their business around

a new model," raid David Manhack, an analver at Seybold Group in Boston who has closely studied Hole's transformation, "Not many companies can do that." But building and hosting its own site and gaining Web technology savey is not for the faint

of heart, he pointed out. Indeed. Last year, Holt spent about \$750,000 developing its size and revamoing its crusty old internal systems. Holt expects to spend roughly \$1.75 million more this war building up its Web commerce skills, technology and market presence That's not chump change to a \$10 million. a year, family-owned business growing at 35% annually

But Holt is willing to take the plunge even if the return on investment is beyond the \$2 million in business it hopes to ring up on the 'net this year and requires a yes unrevealed amount of outside equity financine. "Our systems were real disease ing, so we felt we might as well invest now and gear ourselves for the future." Chief Executive Officer Paul Hole said. "In that

way, it wasn't as big of a risk as it seems. Holt also realizes that even though its eimary competitors such as Learning Express and Noodle Kidoodle, Inc. are small

"Our systems were real disgusting, so we felt we might as well invest now."

PALE MOST MOST CED

Web commerce leapfrogging is as common as child's play. And hesitating now would be a big mistake, as bener-known players such as FAO Schwartz dabble on the Web. and 'netwomens such as ellow, Inc. make separate process," he said. Hole's integrattheir Web presence felt

"We think Web shopping will take of in the next 10 months in the mass market in advance of the holiday season," said David Lord, Hole's chief information and chief financial officer, who masterminded the femielectronic commerce initiative. "We'te in a leadenJup position and need to prest it.

FORGING NEW OROUNI

But being a pioneer in Web-based toy selling is tricky. For instance, many of Holt's initial Web customers were 'net novices who came to Holt's retail outlets with shopping lists printed from its site because they either

feared the Internet or wanted to save on shipping. "They all love the site but wouldn't buy," Paul Hok revealed. To help facilitate in-store ordering, the site now offers the ability to print out an order with the shelf and bin number to make it easier for customers to locate products.

Holt booes such fine-tunings will trans late lofty Web dreams into reality. Other initiatives include the following: ■ Getting inside customers' heads by track ing customer visits through the use of cookies and applying advanced personalization

and profiling techniques delivered with Microsoft Corp.'s Site Server 3.0. ■ Transparently fulfilling orders and post ing content generated by The National Parenting Center, a not-for-profit children's toy

tenter and content producer. ■ Building communities via topic-specific content areas and chat rooms hosted by child education experts and suppliers. On the back end, Lord is betting heavi

by that right interestrion between Microsoft's Size Server and Great Plains Software, Inc.'s Windows NT-based accounting and orderprocessing software will accelerate the returns. Web/back-office integration is among the stiffest operational drags on the Web to day, Seybold's Marshack contended. "An order on the Web is an order - it's not a

ed approach "shows a lot of foresight and is a good example for others." But as is usually the case with Microsoft, Lord realizes he's buying sechnology futures and Redmondian religion. For instance, See Server 3.0 went into production only late last month. And Holt can only hope NT and SOL Server will scale up to his site's ex-

pected transaction growth. Why is he so devoted? Microsoft's Web commerce approach, built around Windows standards, allows various software servers to share objects via its Distributed Component Object Model (DCOM) archinecture, and each key software compoHOLP'S FAMILY INCLUDES (back row, left to right): Edward Holt, Rosolys Holt, Karen Holt Bronner and Paul Holt; front row (free Inft): David Lord and Dabacah Samford

nent, from Web Server and Transaction Server to Active Page Server and Enchange. Server, can be boused on dedicated NT servers or clusters of machines. So if Halt's business builds beyond Lotifs wilder expectation, Holt can boos performance by adding Winter servers to the Advanced Logie Require. Inc. its expectation of the con-

currently powering the site, he explained.

Throwing hardware at performance issues is less costly than tweaking, rewriting or replacing software, Lord added. "I'll take that problem," CEO Holt chimsed in.

And to build new applications and main-

tain or extend existing enes, all Lord heads are Visual Basic programmers — a fairly case, lower-tech commodity to hire in todry's tight skills marker. Overall, it's a good risk to take, said Cheis Stevens, an sualyst at Aberdeen Group in Bostone. "Microsofis" price/performance argament is extremely strong in Internet commerce, particularly it is Inorducal are dealysed evocerts."

and Green Plains' software is critical to that equation. DOOM components built for Size Server can be full through the Microsoft pipeline and processed by Green Plains accounting and order processing module. This means price and discount schedule changes and gift wrapping and shipping for complete the processing through the plain for complete the processing through the plain softfees can be readquasted or Green Plains software and reflected on the Web. Lord said he believes this approach will lower transaction costs by about 75% overall. Much of the savings comes from

~

labor reductions.

With its infinaturcurar in place, Holt its going on the marketing offensive. The company is helping users create buying profiles, which are stoned as 5 to Server directory. Holt has written business tales matched to specific profiles that activate Active Server page folioning data tailond to delivering data tailond to

contemporaries and state of the state of the

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And to bener understand what cummers may want, Hol's a stacking cookies to customers' becomes to track their meanderings through the site. "[There's] a point you need to track some things for [Flol's] benefit and the cummers', "Lord said. Holt's strategy also draws hearily from

the synengy between the physical and eyber worlds. The Nazional Parenting Center deal, for instance, plays off of Holizdistribution and fulfillment closs. Holizin return, will have access to the center's content on everything from reviews on sup-nated toys to parenting tips to infancy and pregnancy issues. This should help consumers make buying decisions, Lord sid. Holt will also process orders made from the Web site, paying the not-for-

profit a royalty on each transaction.

The center sees Holt as another outlet to spread in 'responsible parenting' gospel, in mored organization President David Karner. "We're impressed (with) what Holt

has done and their vision," he said.

These initiatives, including Holi's participation in the Yahoo Jungder Visi comparative shopping initiative, are expected to help Holt build a Web-pervasive presence in time for Holday Season 98. That's key, Holt said: The son industry does almost reso-thirds for imbaints in the week.

leading up to Christmas. WHAT CUSTOMERS THINK

So fin, customers like what they see, Page views are back to the 1 million per quarter state. Not had for the slow part of the year. Carol Siska, who home-schools her five children, ages into 15, in Mannas, Chiao, outside of Cleveland, has already bought: \$800 worth of oblicational trys and books. "I found [the site] cuty." the said. "And I don't have to water gat or take the lade with me to do my shopping."

John Thospe, president of Playmobil USA is similarly impressed with Heisi Web appeared. The U.S. arm of the 5500 million Nummberg, Germany, say maker expects the Web to contribute \$250,000 in sales this year, with a larger chank coming from Held's intellectual to a small but important start. This looking or this as long-term thing. Thoope explained.

long-erm thing. Thosp captained.
Lord, a bean counter transed cookie counter, is confident his Web gambis will work out. "Economerce is the bringing together of the Internet with financial accounting," he concluded, intimating that those, organizations that don't make their accounting systems a critical part of their Web revenue will become discount.

Alper à Computerworks's Magnaines Group editor

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The Halland Persoling Contro www.copc.com/ mall/

CEOs haven't a clue

about the
CHIP-BASED WORLD

hurtling

towards them
from the future.



Wrong.

In fact, nearly 80% of those surveed with that electronic connector will coupled in make or here a specificant implies on their houses. And though GON working as Navil American composes were two as likely to sevelenable application to market products, there in Europe and Ann were hore a likely to expect a complete influental transformation due to electronic commerc. Couchy, global basisses laked the sevided or recognit that electronic business in desiring a finishmental refederation of their business—and will require heralthough thinking about how to subject the charge date of their business.

Our view of electronic business can be summed up very simply: There are us humatoris: EBanantos operas new options for doung humanes, creating a future where links among companies and individuals are only a network asoy. The resurdel Information eich interactions among customers and suppliers, tampble reductions in cost, improved customers servers and customer logistic, development of new analecting channels and the armsformassion of while individuals:

Our approach is classically simple – yet unmatched delivering welstions grounded in the fundamentals of good business practice, coupled with a leven understanding of what is possible through the use of lending schoolings and business process enhancement. Welving as part of your reans, we help you sort through these options and recommend breakshrough strategies that made one for your organization and its people.

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Price Waterhouse



Off the Books

WHAT DID YOU EXPECT?

We asked early Web pioneers if their expectations of the Web business have been met

Cliff Sharples CEO and president GARDEN ESCAPE, INC. WWW.garden.com

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Will Pringle President TerPresion.com



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Bob and Arminda Alexander Owners and operators HAWATS BEST ESPRESSO CO. bookurta aloha net/~bec/ bus.html

"Years'ago when we put Hawali's Best Espresso on we thought semebody might bu a cup or time. We broke even our over since. I thought this was quite a deal: For \$500 we could reach the world, compared wi the gamble of a 25 return for direct mail marketing. Over only costs \$50 a month, com pared with the \$8,000 it cost us when we had a shop in Hawall, [Bot the Web site] doesn't bring to a bugo are of money. When a client asks me to build a Web alto for them, I speed two-thirds of the

EDI Fallacies

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Volume I, Issue 4





NUMA

DEFINITION: Non-Uniform Hemory Access architecture (NUMA), like sy rocessing (SMP), is a technology that extends server scalability by adding proc s. Both technologies allow users to start with reletively small servers and add cessors as their applications grow. For most SMP servers, performance gains bec ruft to achieve and more expensive after eight processors, but NUMA can scale ually, the technology will allow up to 256 processors to be finked her in a single box - some vendors believe they will get up to 512 processors.

HOW NUMA WORKS

To understand how NUMA works it's necessary to know how traditional symmetrical multiprocessing (SMP) works.

Y SMP ties together multiple processors in a single system enclosure. That harnesses the processors' combined power to run multiple applications or a single large application



put to be reduced dramatically.

The processors communicate with one another and a common shared memory ool via a transport chanism called an

nterconnect bus. As the number of proces sors increases in a server, so does the amount of traffic on the bus. That eventually causes the system through-

▼ NUMA, like SMP, allows users to harness the combined power of multiple processors, with each processor accessing a common memory pool. But it arranges the processors into small groups, or "nodes," in which all the processors are interconnected

A 16-processor server, for instance, can be arranged into four nodes with four processors each, Each node has its own memory pool. NUMA reduces some of the bus congestion of SMP by having the processors in a node communicate with one another and their local

memories via separate, smaller buses Processors also can access memory pools on each of the other nodes, though the time taken for that access varies with how far the nodes are from one another. Hence the term Non-Uniform Memory Access



Scalability breaks niche image

WS NT

By Jackumar Vijayan

NUMA HAS been floating around in research laboratories for years. But benefits such as preparer scalability and a lower price tae corr pared with SMP are helping it gain commercial

NUMA's scalability is its biggest benefit Scalability is crucial at a time when fastgrowing data warehouse and online transaction processing applications are blowing the lids off the servers put in place to run them, rays James Garden, an analyst at Technology Business Research, Inc.

in Hampton, N.H. Another plus for NUMA is that users seldom have to tweak their databases or applications to take ad vantage of it. That means when users run out of capacity on their SMP servers, they

can move their applications to NUMA servers with relative case Most other scalable architectures, such as mussively parallel processing and chastering, require users to tinker with code - a process that's complex and expensive — before moving

their applications NUMA picks up where SMP leaves off, says Jonathan Funice, president of Illuminata, Inc. a consultance in Nashua, N.H. Treically, SMF servers can handle scalability issues well - but only up to about eight

essors. After that it becomes increas ingly costly to derive additional perfor mance, Eunice says. There is an ex pense involved in building larger and

"NUMA really isn't different from SMP - it is just an engineering technique" for extending SMP scalability efficiently and relatively inco

vely. Eurnice says. NUMA servers today support 32 processors and eventually will be able to support up to 256 processors. Currently, a typical NUMA configuration ranges from eight to 16 processors, supports up to 3aG bytes of memory, has more than 1T byte of disk space and runs Unix

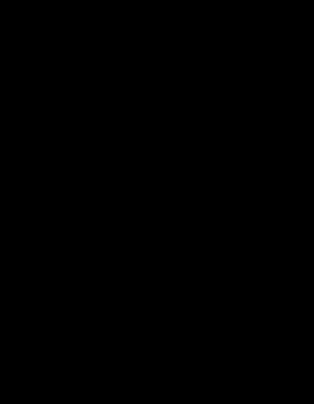
Vendors that are leading the NUMA charge include Beaverton, Ore.-based Sequent Computer Systems, Inc., Mountain View, Calif.-based Silicon Graphics. Inc.: Data General Corp. in Westboro, Mass.; and Siemens/ Nixdorf Informationssysteme AG in

Virtually all other server vends including Sun Microsystems, Inc. and Hewlett-Packard Co. in Palo Alto, Calif.: Digital Souipment Corp. in Maynard, Mass.: Tandem Computer Systems. Inc., a Compaq company in Cupertino, Calif.; and NCR Corp. in Dayton. Ohio, also use NUMA techniques in varying degrees to increase scalability.

espite NUMA's promise, one of the im diate challenges it has to surmount is its image of being a relatively untested niche technology, analysts say. Windows NT support is going to be crucial for wider acceptance of the architecture, Garden says. "Ultimately, wider operating system support is what is going to drive wid acceptance of NUMA servers. "D



QUICK For vendors, Com articles and other links to **NUMA-related mat**



COMPLETERWOOD D

NUMA

DEFINITION: Non-Uniform Memory Access architecture INUMA) like symmetrical multiprocessing (SMP) is a technology that extends server scalability by adding processors. Both technologies allow users to start with relatively small servers and add processors as their applications grow. For most SMP servers, performance gains bec difficult to achieve and more expensive after eight processors, but NUMA can scale much higher. Eventually, the technology will allow up to 256 processors to be linked together in a single box - some vendors telieve they will get up to 512 processors

HOW NUMA WORKS

To understand how NUMA works it's necessary to know how traditional symmetrical multiprocessing (SMP) works.

▼ SMP ties together multiple processors in a single system enclosure. That harnesses the processors' combined power to run multiple applications or a single large application.



The processors communicate with one another and a common shared memory pool via a transport mechanism called an

the number of proces sors increases in a server, so does the amount of traffic on the bus. That eventually causes the system through put to be reduced dramatically

▼ NUMA, like SMP, allows users to harness the combined power of multiple processors, with each processor accessing a common memory pool. But it arranges the processors into small groups, or "nodes." in which all the processors are interconnected.

A 16-processor server, for instance, can be arranged into four nodes with four processors each. Each nodhas its own memory pool. NUMA reduces some of the bus congestion of SMP by having the processors in a node communicate with one another and their local memones via separate, smaller buses

Processors also can access memory pools on each of the other nodes, though the time taken for that access varies with how far the nodes are from one another Hence the term Non-Uniform Memory Access.

SAMPLE OF VENDORS

 A DAMILE OF TENDONS						
Vendor	Product	Number and type of proces- sors supported	Nemory	Osk storage	Starting	
Sequent Computer Systems, Inc.	NUMA-0 2000	Up to 252 Pentium Pro	Up to 2525 bytes	100T bytes	\$100,000	
Oata General Corp.	AV20000	Up to 64 Pentium II Xeon	64G bytes	100T bytes	\$70,000	
Salicon Gramburs Inc	Onigin 2000	Up to 128 MIPS 910000	Up to 256G hytes	Up to 232T	\$52,164	

Scalability breaks niche image

B. Jaksmir Logar

Liberatories for years. But benefits such as - greater scalability and a lower prior tag own parted with SMP are belong it gain commercial

NUMAs walability is its hippert herefit Scalability is critical at a four filters fast growing data warehouse and online transaction processing applications are blowing the lids of the servers put in place to not them says James Garden, an analyst at Technology Bosmess Research, Ira

in Hasseton, N. E. Another plus for SUMA is that trees widom have to tweak their databases or applications to take all centure of it. That means when next run out of capacits on their SMP servers, they

can more their applications to NLMA servers with relative year Most other scalable architectures, such as massnels parallel processing and clustering, remust users to tinker with code - a trouvethat's country and expressive - before parametheir applications

NUMA puls up where SMP leases off, says Josephin France president of Elemental Inc a consultance in Nashna, N.H. Tepicalle, SMP servers can handle scalability issues well - bit only up to about culti

processors. After that it becomes mercas mely south to define additional perfor nunce bunce say There is an expense unahed in

beolding larger and later SMP bines. Emitter says "N. MA really cost different from SMP — it is

SMP scalability officiently and relatively may pensisch Emiss sas M. MA servers roda support 42 processorand exentrally will be aldo to support up to 230 processors. Currently a typical NUM Configu

nation ranges from eight to 16 processors, sup-Vendors that are leading the NUMA charge AT ISSUE

quent Computer Systems Inc. Mountain View Calif based Silicon Graphics Inc. Data General Gorp in support will be Westborn Mass and Surmons: crucial for Sindorf Informationissistem: AG in acceptance

> Virtually all other server vendors including Sun Microsystems. Inc. and Howlett-Packard Co. og Palo Alto. Calit., Digital Equipmust Corp in Manuard Mass. Tandeni Contpoter Systems Inc. a Compaq company or Copyrisms Calif. and NCR Corp. in Dayton Olito also use NCMA techniques in varying

> Deserte SUMAs promise one of the minodrate challenges it has to surmount is its image analysts say Windows XI support is going to be emoral for wider acceptance of the architectime Garden says "Litimately wider operations system support is what is going to drive wider acceptance of MANA servers "C



articles and other links to NUMA-related materials. en to: www.comeuterwerk com/more





Hoe it? Drive it? I saw one just the other russen Beetle, as red as a ripe toma to, rolling along in a line of traffic made drab by com son. Everybody in sight was smiling at it.

In all the stories written lately about this Sectiomania phenomenon, nowhere have I seen a word out the technology behind the reincarnation of the VW Beetle. We're delighted to correct that oversight with our front page story this week about the profound role information technology played in bringing the Love Bug back to life.

National correspondent Julia King and I recently spent three days in Puebls, Mexico, a sprawling city of a million about an hour southeast of Mexico City. There in the foothills of Mount Popo, the active neighborhood volcano, we found a great story about tional business and high-tech transformation.



Out was also found to pelling cultural triumph at Volkswagen/Gedas, a demand for too U.S. talent oerson IT operation THE BEADING IN COMPANY world every week about the that's run by Germans yet year 2000 crisis. I thought now till manages to be a very would be an opportune time to use

can company at heart. my 10-plus years of mainframe ex-One visible example was But I've found that there is little real demand for my experience bedreds of finished Beetles roll off the line each dar: a cause imported foreign labor is statue of the Virgin Mars, encased in glass and sur

another group

of Indian pro

65,000

are of U.S. talent?

grammers. Is there really a short

The U.S. General Accounting

Office just released a study that

methodological weaknesses" in

the case for a domestic talent

one to do to your "security."

Currently, Congress, Sun Mi

There are a number of firms rounded with flower bouquets here in Ovegon. including state Our host for the visit was Chief Technology Officer coarmment de-Stefan Wiesner, a native Serliner who's become a partments, that one-man cheerleading sound about the joys of living routinely imand doing business in Mexico. Even his working style port large numbers of prohas made room for the more relaxed, personal wars grammers from of Latin Americans. "When I go back to Germany, I India for a rehave to remember not to touch people during a conmonth stint Then they are prestion. It startles them too much!" he said replaced with

Wiesner and his managers made cultural differ ences work in their favor as they purposefully set about creating a company spirit rather than imposing one. The Mexicans taught their highly individualistic an co-workers how to thrive in teams. The Ger mans taught their Mexican teammates how to apply more organized approaches to tasks such as software

The result is an impressive business victory in the guise of an awfully cute little can





Cheap foreign labor lessens IRS project is a boondoggle

If you think

cure, watch

what the nov-

ing to do to

Chris Labor

Portland, Orc.

labor@kerpurt.com

CFrank Hayes' IRS column |"The IRS's doomed cure all," CW April 61 was right on the mark The plan is absurd

I'm old enough to remember that lack Kennedy allowed NASA only eight years to land a man on the moon and return him safely to Earth. That we must about the lumit

for a "tops-down, goal-driven" technology project. In the case of the moon, the goal was eassly recognizable, and everyone could agree on whether

your job is seor not it had been achieved This IRS project is a boundoggle that will be used as a bad example in erament is no management textbooks Each year we will bear about terrific progress even as they ask for more money mur "security and rebel from schedules.

and the goals get less clear Rager Dooley ARDI Research San Diego

Uh. oh! YZK bug hits home

COMPUTERWOODLD HAS great stuff on the year 2000 issue. please have more of it. A small glitch though: On page c8 of the May 25 issue, the graph

consistens. Microsoft and others ic next to the "Year 2000 Scoreare working very hard to raise the board' save "e8's days to emmigration limit toovernment program H-18 visas) for "specialty 1/1/00. Uh, oh. Here's the preoccupations," currently set at mser computer information source still using a two-digit year! If you think you have a secure Bad form. Exactly what year is go job with good pay, sit back and ing to happen in 585 days? Sorry but I couldn't resist. watch what the government is go-

John Weber Eurotein Technical Solutions Duelland One weberjm@worldnet.att.net No naked ladies or beer, so why can't I get in to shows?

HEN I STARTED to read Don W Tapscoth's article about youth at Comdex, a smale came across my face ("Youth should be served at Comdex," CW, April 6]. Last year I went down to Networld/ Interpe in Atlanta with my father. who had free passes to the show

the lady security guard said. "Sorry, no one under 18 allowed." So my father got me an ID card with his name, but with "Ir" after it. I went past security guards, try ing to look as grown up as possi ble, on my tip-toes and stuff, and I was caught twice, but the Peachpit

Center for whatever it was called had multiple exits, so I just went in another one. It is really stupid not to allow kids on the show floor: I had fun with the Motorola race cars and stuff like that. Why can't other children be allowed in? They don't have naked ladies or beer on the floor or anything, and we certainly

won't get bored Richard B. Gilder, age 14 Tyringham, Mass

residento maslexcite.com Computerworld welcomes comments from its readers Letters shouldn't exceed 200 words and should be addressed to Manfran Johnson Executive Editor, Compute world, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax num ber: (508) 875-8931; Internet clude an address and phone

number for verification.

Smithsonian Awards: A decade of change

David K. Allison

very day, I walk past Eniac - the machine that started today's computer industry. Around the corner are the Digital PDP-8, the Xerox ALTO

and many other landmarks. shape the information revolution. That

All are on display at the Smithsonian information is available on the Web at exhibition called Information Age: Peohttp://mnovate.o.pdu ple, Information & Technology. The exwith information technology in a few short decades. So far, it's only the begin-

That's why keeping up with the histo ry is such a daunting task and why the

Smithsonian needs all the help it can get. For the past 10 years, the Computer world Smithsonian Awards program has worked closely with Computerworld and many compa-

mes in the unforma tion industry to document outstanding IT leaders and applications. We've col lected almost 2,000 case studies. We've conducted oral and video histories of more than 50 pioneers who helped

As the collection grows at becomes in creasingly valuable and compelling

For a follow-up look at past award winners, see In Depth, page 71.

Looking back at the first ro years at fords intriguing compansons. In roSo. Unlineer Enterprises was nec egnized for producing Live Aid, the global television broadcast that raised \$124 million for famine relief to Africa. This year, RealNetworks was

recognized for its RealAudio and RealVideo. Using those technologies. worldwide benadrasts of all sorts occur even day of the work could track every piece of mail in a deliv

In 1989, we banared Fidelity Invest ments for its automated telephone service, which provided customers with cur eest investment information. In the past few years, we've added case studies that document many new forms of online mvesting, banking and even instant ap

proval of home mortgages. Underlying those examples is the adyest of the Internet. It's unquestionable the most powerful agent of change during the first to years of our collec-

non. But it isn't the only one. Another widely used innovation is the Global Positioning System It's used for applications as di

terms as the precise distribution. of feetilizer and the tracking of endangered species of birds Another undespread innovation is the use of virtualization and simulation technologies in science, busi-

ness, government and education The collection tracks new ways IT is used throughout society. But equally imnortant is the burnan side of innovation Rehard each unnovation are men and women who struggled to implement new ideas. They are teachers who want ed students to produce their own previ broadcasts, engineers who believed you ery system, and doctors who thought it better to teach surgery on a computer simulation than on a live patient. Their stones are a precious part of the Informatten Age Without the awards program, those stones might be lost

For the historian, that points to the darker side of IT. A simple click of a mouse button can destroy years of docu mentation without a trace. Rapid changes in technology can make older disks. file formats or programs unread able Databases that keep no audit trails make it impossible to recreate what they contained at a specific time. What some one knew and when someone knew it can't be discerned

In the paper world, it took effort to de stroy the historical record, now it take effort to save it The Computerworld Smithsonian Awards program is one step in the right direction. But it's a small fraction of what needs to be done

Preserving the legacy of our information society will require new sensitivity about documenting the application of

Alltion is chairman of the Information Technology of Society department at the Smithsonian Institution's National Music um of American History

Microsoft's other monopolies

John Gantz

o. Mesmerized by the spectacle of Uncle Sam wrestling in the mud with Microsoft over Windows 98, everybody's missing what may be a more serious increase in the company's market power

in the enterprise

Perhaps that's because Microsoft currently has a minority stake in enterprise software Last year, according to figures from International Data Corp. (IDC). Windows NT accounted for about a third of all server operating systems, as measured in units shipped. NerWare and the Unix camp accounted for most of the other two thirds. But, by 2002, NT will account for more than 50% of server operating system shipments. In the PC server subset of the market, NT will account for almost 60% of shipments.

The conventional wisdom is that NT will be used primarily for simple administrative tasks, such as file and print handling. As late as a year ago, in a survey of more than soo U.S. computer users. IDC confirmed that the same notion was shared by respondents. Heavy-duty database access, transaction-processing and

But that was a year ago. I think NT is slated for bigger things than file and peint handling. Some of the buggest Internet commerce sites run on Windows NT. I think the fact that NT is offered by a single vendor - not a fractious tribe of Unix suppliers - and supported by an army of independent software developers and technical support specialists will give it the win in any close evalua-

the like were reserved for Unix.

There's another enterpriserelated market that Microsoft will dominate. It's the enterprise network computer market, soon to be reconfigured as the Windows-based termi-

outers and about a million 12701. 52501 and ASCII terminals. That's not much but by 2002, that shipment figure will exceed 7 million. with Windows-based terminals accounting tion. The NT destray set in motion more

for male of the total Whale nobody's looking. Microsoft will have dominated yet another market. than to years ago, when Gates hired David Cutler away from Digital, will be

With the world distracted. the company moves ever deeper into the enterprise.

nal market. Although no official Winportment of Justice can't prosecute Ma dows based terminals are currently shipcrosoft for monopoles the company gung - because that will require the pro doesn't have yet, but there's nothing to duction release of Windows NT Terrnstal prevent us as computer industry profes Server, code-named Hydra - most of sionals from planning accordingly the petwork computers that have shipped so far have had to support Windows through the addition of third-party Last year, according to IDC, just more

First I think I would plan on a miss men to Windows NT that wall include some heavy-duty applications. By the time you get to those applications, NT will be more robust and scalable. It will be the most common server op than a million terminals shapped counting about 200,000 network comerating system on the planet, so obtain-

ang outside belp in application develop ment, customization and support will be easier. And if I had any current terminal applications nr suitable server omented PC applications. I'd look at

Windows-based terminals as an Yes, there will be room for Unto

and NetWare applications, and ves, there still will be a market for non-NT-based thin clients, including the network computer But the Macrosoft logo is moving deeper mto the enterprise, and you'd better get used to it.O

Gante is sensor vice president at IDC us Framuscham, Mass. His Internet address is iguntz@idcresearch.com.

The kids are alright

Don Tapscott

The recent shootings of schoolkids by fellow students have led pundits and journalists to decry the "growing problem of youth crime." Everywhere, you hear the chorus, "What's wrong with kids today?"

Stones of youth violence, suburban kids' drug use and parental discipline disastess are everywhere. And when it comes to kids and technology, youths often are portrayed as either little victims

or little criminals. When researching Growing Up Digital. I found that many so-called experts beheve technology specifically the loternet and video games - has led to a generation with severe intellectual,

Typical is ao art cle by psychiatrist Theodore Roszak, who writes in the New International, "Used as a teaching device, the Web is an expensive way to distract attention and clutter nology away from children. And according to author and men's movem standard-brazer Robert Blv. the big prob-

Technophobes are dead wrong: children are thriving in the digital world.

lems in the world today are youth. technology (which he claims is 'eat ung the neo-cortex" of children) and youth culture. In The Sibline Society

Bly writes, Technology has destroyed interrelations in the human community We are living among dispensed and agonized teenagers who can't find any the mind." His conclusion? Keep tech-

First, the youth crime wave is a myth Youth crime has been stable or declining for five years (two decades, if you sub tract mner-city drug wars). Sure, severely disturbed children with easy access to arsenals recently have committed unthinkable acts, but they aren't consistent with their generation as a whole

When it comes to kids and technolo gs. I'll agree there is much to be learned. There are many real dangers that war rant good management on the part of businesspeople, educators, parents and

But my investigation of the Net Generation (kids 1 to 21 years old) indicates that the cytocs, techno phobes and moralists are dead wrong. The research suggests that even body should relax. The lods are alright. They are learning, developing

and thriving in the digital world. For example, most lads who spend time on the 'oet areo't taking time away from their homework, hanging out with friends, playing soccer or learning the piano. To date, the main victim

of the 'net is television and when but are online rather than tube-bound, they're reading, thinking, analyzing, criticizing and auth - composing their thoughts. They need better tools better access, more services and more freedom to explore

Kads use computers for activities that go hand in-hand with our understanding of what constitutes a traditional child hood. They use the technology to play, learn, communicate and form relationships as children always have

On the other hand, the digital media are creating an environment where those activities are changing dramatically and may for better or for worse, accelerate child development. I found that development is enhanced in an interactive world When kids control their media, they develop faster To be sure, there are issues to address

Children can become enthralled with their new worlds at the expense of other healthy activities, such as homework I've found that most kids correct such ambalances themselves, but parents must be vigilant

What we know for certain is that children without access to the new media usif he developmentally disadvantaged C

Tapscott is chairman of the Alliance for Converging Technologies and an authority on the impact of the digital media on busi nest and the economy. He is the author of six books, including the best-sellers Para digm Shift and The Digital Econ His most recent book is Growing Up Digital: The Rise of the Net Generation (McGruss-Hill, 1998).

The bright side of monopoly

David Moschella

nyone who regularly reads this column knows that I've long argued that Microsoft has engaged in illegal, predatory behavior to further

its already immense market power.

behaved similarly, Microsoft has been unwilling to admit that monopolists have to play by different rules. Risking its very credibility the commany even has denied that it has a monopoly. The Department of Justice was right to interwine That said, it would be a great mistake

to demonize Microsoft and distort its impact on our industry. Only through some deliberate hundness can we fail to see that the more powerful Microsoft has become, the faster the IT industry has grown. Now that the Justice Department is on the offensive, it's more important than ever to recognize Microsoff's many critical contributions

Typically, those contributions have een described in historical terms. Before the PC, pretty much every hardware vendor had its own proprietary operating system. Whether the market was main frames, minicomputers. Unix super

Although other companies surely have micros or technical workstations, frustratingly incompatible systems prolifer ated. First with DOS, then with Windows and now with NT. Microsoft singlebandedly eoded that wasteful tradition.

The impact on overall industry growth is almost smoossible to overestimate. In Japan. a true PC standard didn't emerge until the early 1990s, and the lapanese IT industry - and even the lamporer

economy itself — still suffer the aftereffects. In the U.S., Microsoft's commitment to low-price, high-volume software us deeper and more authentic than its largest competitors'. Even today, it's hard to make the case

that Microsofi's gains have been a net loss for the IT industry. Although comion in a number of areas has been largely eliminated, the energies of the market have mosed elembers and

The World Wide Web represents per-

haps the greatest spootaneous outburst of technology in history. That this could happen without Microsoft's investmen or even knowledge remains remarkable Although software vendors in the messaging, database and utilities businesses often feel squeezed, those in the applica tion space see nothing but green fields To SAP, Baan and PeopleSoft, NT provides the foundation needed to build the

integrated enterprise of the future That application creativity is about to accelerate dramatically. The Web, in tranets and extranets will enable an ever-greater share of business activity to be managed by software and con-

ducted over networks. Freed from normes about underlying platforms, software entrepreneurs are creating a whole new class of hors zontal applications

for customer service It's hard to say that Microsoft's gains have been a net loss.

purchasing, human resources manage ment, direct marketing and so on. How can an overwhelmingly powerful Microsoft monopoly and an evermore dynamic software industry happily coexust? The answer lies in the fact that monopolies are most harmful when the potential range of value creation is inherently limited

In the case of software, nothing could be farther from the truth. There's so much work to be done that talented companies and entrepreneurs still have more opportunities than ever

Does that mean the gove should simply butt out? Not at all. Valid laws always should be energetically

Moreover, at some point, the downside of an unfathomably wealthy and highly aggressive monopoly inevitably will begin to outweigh the benefits. The art of public policy is to intervene before that happens. That is pretty much where we are today. Perhaps things are as they

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matter where they are or what network they're using. This means increased productivity, and bottom time results. Backed by Bell Labs. DEFINITY ECS gives you assured reliability. It's also flexible enough to suit your needs now and in the future. And, of course, it's Tear 2000 compliant. Plus, we'll be there all along the way to keep it performing optimally for you in order to find our more about DEFINITY ECS, call your local Lucent representative or 1-800-221-1223, and salt for contension 55. We must be this place that asks communications used.



Experts debate costs of 2000

problem? Probably less than we've been earing, wrote Paul A. Stratsmenn in his Computerworld column on May 18. Straumann used first-quarter 1908 fillings with the Securities and Exchange Commit sion to estimate that companies are hudgeting only \$40 billion to fix year 2000 trou-Nex - a surprisingly low 8.1% of their annual information technology budgets That column triggered on E-mail debate among other millennium experts, Leon A. pelman. Capers Jones and follow colum nist Ed Yourdon, who say the cost of fixing the problem will be much higher than

probabl reportable discussion on the subsets Leon A. Kappelman (University of " North Texas and SIM Year 2000 Working Groupt: I find some of Strassmann's hassons troubling. In a nutshell, the SEC data is weak due to off Yak budget items (for example, upgrades, replace ments) and underreporting errors (85% of corporations thank their year 2000 es-



agement (those who approve SEC paperwork) and the people ng YaK projects (those who answer the SIM study ourstionnaires). From what I've seen about these projects,

I'd place my money on the project And these project leaders tell us that their enterprises are spending about 18% of one year's IT operating budget dealing with their Yak problems - and that that number only marginally includes embedded systems and desktop/PC

Y2X boo is bulky, not complex

N CONTRAST to columnist Michael Schrage's opinion | The doomed year 2000 body toss," CW. May 4L I would like to suggest that the YaK problem is one of bulk rather than complexity Throwing more bodies at a complex soft ware problem will certainly slow it down as Fred Brooks so eloquently describes in The Mythical Man Month. But for those IT shops with a few billion lines of Cobol kicking around, the problem is one of ess, not comm

Designing and building the cure of an ing system is a fundamentally different problem from looking for needles a buby in one month, but nine program mens can certainly scan nine programs in trust in project managers, you need to be convinced that they have no conflict of interest in reporting higher year



truth is some where in be tween, perhaps Seems that both samples pose va hdity challenges. es: Arguing that "the truth

is somewhere to between does not rec ognize that the biases do not have equal validity. When I weigh the biases of proect managers reporting to SIM and management reporting to the SEC, all I can say is that management may be held accountable for what they say I becomes a matter of record and subject to litigation and liability suits. Project

managers filling out SIM question cannot and would not ever be held Paul A. Strassmann accountable for what they say Furthermore the project managers mous, while SEC filings

are on the public record and signed by a CFO Permit me to clarify: 1 didn't imply they were equal, else I would have said "in the middle" rather than "in between." Still, the decision of what one enter

prise includes as a YaK budget may be very different from the choice of another In light of no standardized definitions for things such as "Yak compliance" or "YaK expense" and what

parallel. Growing a baby is a complex task — scanning code is not Warren Spencer Oneso, N.Y. WHEN I SEGAN reading William Ul-

Date check on the mile erz arer cruerray doesn't begin on

Jan. 1, 2005. It begins on Jan. 1. 2000. The first year was 1 CE. The year before was 1 BC. There is no zero year Therefore, the first century CE has only 99 years. The remaining centuries have too wars, beginning with o and ending with 99. Reality is that 2000 is the new

Believille, N.J.

server recomitation com

I think is management's bias toward underrenorting this figure. I suspecthe SEC figures are on the low end of

Capers Jones (chairman, Software Productivity Research): I've been study ing estimating accuracy for more than 20 years. For large software project esti mates, these are the approximate results from among our clients: Out of every hart like manage 100 estimates, about 70 will be extremely optimistic, 25 will be within plus or bias for reporting minus 10%, and 5 will be conservative by a lower one. The more than 10%

Since optimism and underestimat are the norm for software, and since yes 2000 estimates are more complicated than normal software estimates, I suspect the SEC reports may be optimistic What often happens is that the project manager initially creates an accurate or conservative estimate. When it is presented to senior management or clien the conservative estimate is rejected and

arbitrarily replaced by a more aggressive estimate and schedule Ultimately we have to get down to numbers. In it \$300 billion-plus as allesed by Gartner Group, or is it closer

to \$50 billion for U.S. corporate

Hard data (at last) on year 2000 costs \ Siressman. person opened pale, purchasel and months comparison by size of U.S. organizations' SEC fillings lead to a arprising conclusion.

repairs and other costs outside of sof

EEN I SEGAN reading William Ul-

year 2000" column (CW, April 6), I could

doom and electr was hilarious.

His satire of the worst of the Yak

I loved the image of computer pro-

rammers running to the hills to hide

in bunkers during the millennis

change, like something out of the Cold

It was not until I got more then

There is no doubt the year 2000 is a

problem. Systems will fail, a few compa

nies may fail, and government services

halfway through that I realized the col-

not stop laughing

umn was not a sating

That is when I got scared

My estimate for overall U.S. costs prior to the Yak event is for \$177 billion since I also included hardware upgrades, database assume incompetence before looking fo

lion was for post 2000 litigation, damages and recovery. These are not in the SEC data, I suspect

Ed Yourdon (chairman, Cutter Consortium): Strassmann's information is interesting, but among other things it asnumer that companies are reporting ac-



at least one very large New York bank is spending five times at much on YaK as it's reporting, in order to disguise the magnitude of its problem and to avoid scaring

curate data to the

SEC. I've heard

from a fairly reli

able source that

people. Also, the language in the SEC disclosures was often so ambiguous that it was difficult if not impossible, to tell what companies were really doing.

Stressmann: If we had lots or cheaters, the regression analysis would have shown it. To my surprise, this was not so - the relationship

hermon' the number reported to the SEC and my approximation of the IT budget was a relatively tight fit. To get such a result would require 84 SEC filers to uniform! share an identical underre porting bias. The probability of that happening is hard to

As I noted in my Comworld column, whole the SEC numbers have greater credibility than anything published so far, I do not feel we should depend entirely on the SEC data until we see a larger sample from companies that have passed through the testing phases of YaK

As noted by Machiavelli: Always ware. I estimate that another \$407 bilconspiracy Year 2000 column was hilarious . .

until I realized it wasn't a satire

But systems fail today, and the world beens spinning The absolute worst case YaK scenario is not that the world goes up in a puff of

smoke - but that nothing fails, no company goes out of business, nobody no-The backlash against fat-cat IT consul tants who have spent the last few year getting rich spreading YaK fear would be

something to behold

From that there will be nowhere to Robert Lyferell

tererime Below Roseville, Cali rivist highost.com

Corporate Strategies

visas, 1997-1998	
Company	H-19s
Mastech	672
Tata Consulting	382
Sai Software	224

Briefs FCC asked to prod telecom carriers

USERS ARE SEARCHING for legal authority and assistance from the Federal Communications Commission to pry information on year 2000 testing out of voice and data carriers.

Without more coop from carriers, large businesses are worried they won't have time to test whether they can make electronic transfers for everything from cash to purchase orders over their carrier's networks once the businesses and west accountable

market even hotter

cause terms and conditions m service tariffs largely limit carri ers from being sued if service is down, said Brian Moir, counsel for the Dallas-based Interna-FCC, page 44

to get infor



Big banks join the online trading frenzy

Seek to satisfy customers in burgeoning niche

By Sharpe Machilis BankAmerica Corp. con firmed last week that it plans to unveil its first Web brokerage TWO ONLINE BANKING PROBERTS this cummer And Wells Fargo will launch new World Wide Web brokerage services during the next few months, moves apt to make the aiready fiercely

& Co., which already has a modest electronic brokerage called WellsTrade, said it plans to roll competitive online investmen out a beefed-up offering sometime in the third quarter.

THE KILLER APP

Snapshot MOTIVATIONAL MERCHANDISE

Here are some ways to reward employees for a job well done.

O Electronics. People love to own the latest gadg 3 Tools to help workers be more productive. These

might include cellular phones and laptops. (C) Unique customized gifts. Special-edition litho graphs or compeny-imprinted credit cards.

O Compact versions of old favorites. Under-the nter can openers and small TVs and radios

Services. A housekeeper for a year, baby-sitting coupons and spe visits.

Their banking sites are defi-

nitely best-of-breed," said John Robb, an analyst at Gomez Advisors, a Boston-based research firm that follows the online investing market. "But can they play in the brokerage space? It nine to be seen

Online trading has become "the long-awaited killer application for the financial services industry," according to a recent report. The New York consultancy said that by 2002, housebolds that make stock trades over the Internet will hit ur% of the overall personal investing market. In contrast, only 19% of the consumer banking market

is expected to be online The raging bull market, relatively low commissions and pear instant access to financial information have helped fuel consumers' move to online inverting and have sparked more than 60 companies to offer services on the Web. Market leader

Charles Schwab & Co. signed No banks, page 46

Users exchange laptops for cell phones

Br Barb Cole-Gomolski

LOTS OF PROPER have their Lotus Development Corp. Notes systesus set up to page them when they receive E-mail. They can even read the messages on their pagers and type a reply if they are using a two-way pager. But a typical response to those pages is to scramble for a telephone because the person on the other end needs an imme-

But new software from the Cambridge, Mass., company lets users of AT&T Wireless Sersice's PocketNet service access and respond to E-mail from their cellular phon

The Lotus Paper Gateway Release 2.02, a \$3,000 add-on to the Domino server, could make it easier for mobile workers to stay in touch and could give information systems depart-



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COMPAQ

Big banks join online trading fray

un aggiogo active online acints in the first quarter alone

which bolstered its December 1997 account total by 11% But the fast-paced, rough-and tumble world of electronic stock trading is "a different game from the more predictable banking business, cautioned Tim Klein, an analyst at Piper laffray. Inc. in Minneapolis. The banks are doing it more for igustomeri retention. I think it's a defensive maneuver," he

said. "It's not a bad idea." One of the reasons Wells Fareo is enhancine its online trading offering is that customers have been asking for it, said fermir LaSalle, vice president of online brokerage at Wells Fargo's private client service division. They're very interested in doing a broad array of financial

start trades



vices with us," she said.

portant addition to its service The existing WellsTrade brokerage now serves about 10.000 customers, and the bank has 420,000 online users.

clude business news from an custode sendor she said. Officials at BankAmerica's

Wells Fargo is overhauling the

Wells Trade user interface to

operating company declined to be interviewed about the new service, but they have said that they are looking to expand avail able choices for customers One thing both San Fran cisco-based banks aren't likely to do is drive down per-transac

Wells Fargo and Bank of America officials said they plan to charge prices comparable to Schwab, which would be \$20 of per trade of up to 1 ood shares, and not dive into the deep-discounting wars that have pushed some electronic broker

age prices below \$10 per trade. The hunk decided last year Robb said such a pricing that online trading was an imstrategy makes sense because the banks are targeting con sumers serking one-stop shop ping and who are willing to pay a little more for convenience Serious, high volume traders for whom a few dollars differ

ence per trade could translate into thousands overall, look to the discounters. Robb said

make it easier to navigate adding streetment tools and cal The expected appearance of culators and planning to in some regular, full-service bro kers into Web trading should also shore up prices We believe that the market

has moved beyond price only." said Schwab spokesman Tom Taggart. "The real battle is in the online investing space which is different from online trading." That means offering financial information, attractive and easy access to an investor's full portfolio, an array of software investment tools and the

like "I don't see (the banks) as any real threat in terms of the but ness we're in," said Dennis Marino, chairman, CEO and president of New York-based National Discount Brokers. which charges \$14.75 per trade. "But it's nice to have the (Web trading concept validated. Electronic commerce is a place where you just have to be. "D

FCC asked to prod carriers

tional Communications Association, a user group of 500 large "Find a tariff that doesn't ex-

pressly limit carrier liability whether you have a \$5 bill or a \$5 million bill," Mour said. "You tell me what kind of leverage we have" to get information on interoperability tests and carrier

> FCC officials and private telecommunications attorneys said "hold harmless" and "force majeury" clauses have lone been commonplace in service tariffs and supplementary service contracts written for large These clauses mean that

some event beyond my control has made it impossible to meet my obligation . I wouldn't be surprised that carriers argue year 2000 is outside their control," said Ellen Block, a Washington attor ney at Lesone Blosvak Block and Boothby, Block specializes in writing service contracts for carrier customers. "It's a

huge concern of large users. she said Block said that it wasn't uncommon or unreasonable for a carrier to ask to be excused for events beword its control She

added that the carrier's our tomer can use the same protec tion from lawsuits brought by CHOICES LIMITED

ners is compounded because often it is impossible to find an alternative provider, especially Moir and a representative of

(NRF) met May 27 with FCC officials to urge them to apply more pressure to carriers FCC officials responded that they are monitoring the carri

more steps if necessary. "We would like to see the fed-

eral agencies provide informa tion to the public about the readiness of essential service providers,* said Cathy Horks. vice president of information technology at the Washingtonhased NRF, which has thousands of members.

"Year 2000 Ifailure! is not an act of God." Hotka added. "It is an avoidable occurrence if we all not together and muck on it " If stores have no phone service. most will close their doors, she

CASE-BY-CASE WANTED All the major public carriers have filed war 2000 plans with the Securities and Exchange Commission, showing expenditures of billions of dollars on year 2000 work, but users want details about things that affect

them individually Moir and We're not getting behind the curtain to know how they did tests. And so what if they say they have a clean highway? That doesn't mean their network operations are going to work,"

analysts coul

The largest U.S. carmer AT&T Corp., is spending \$469 million through year's end with a goal of making itself year 2000-compliant by next year, leaving an entire year for interoperability tests with other carners, a spokesman said

AT&T spokesman Dave Johnson said it is "almost ridiculous" for users to complain they can't sue AT&T for a possible year 2000 outage because AT&T doesn't expect to have problems. Despite a recent frame-relay network outage, be said, "the reliability of our net work is second to none." AT&T has a World Wide Web site for its customers to ask quest

al (www.att.com/ year2000). Cl

Users trade in laptops for cell phones According to Turner, the

CONTINUED FROM PAGE 41 ments the option of outfitting mad warriers with cellular

phones instead of laptops. *Some people just don't like carrying laptops," said lim Turner a technology specialist at the U.S. Fish & Wildlife Service in Portland, Ore., who beta tested the software

The idea of doing this is very attractivé." agreed John Biack director of technical operations at Papa John's, Inc., a chain of pozenas based in Louisville, Ky Black said the enhancements to the Pager Gateway would be most beloful to the members of the 15 team who carry pagers but "typically don't carry critician

But beta tests indicated that

using céllular phones for remote E-mail access probably use't for everyone. For one thing, users can read only the text of a message on the cellular phone's twy screen

- not attachments. On the plus side, users also have access to their Notes calendar. "I'd like to see it do more," said Turner who thinks access to Notes databases and electronic file nets would improve the ne's usefulness.

mail and scanning through a message ... You'd think that itty-bitty [display] would be a pain, but it's not." The problem, he said, is that when users respond to a message, they must navigate the

of ATAT Wireless Service's Packet-Net service access and respond to

shone's awkward keypad, often pushing buttons multiple times to get the desired letter. And the phones don't alert users when a new message

comes in so they still have to check regularly And depending on the phone, users may not be able to make outgoing calls or get incoming calls when checking

E-mail-enabled cellular tele hones are useful for a benited number of applications, said Phil Usher, senior vice prese ent at Calabassas, Calif.-based Countrivide Home Loans

which outfits IS managers with phones are "prest for checking two-way pagers that link them to their Notes in-boxes To make them ready for mass use, he said, a device that combines the larger keypads and the paging capability of twoway nagery with a cellular

New software from Lobes lets users E-mail from their cellular phones.

> spond to E-mail with your woice." Turner agreed.

In the meantime, the E-mail nabled cellular phones will find a place at Fish & Wildlife he said. "Maybe this will gov them the freedom to leave the laptop in the trunk of their car grab the phone and go off to a meeting," be said. O

nhone is needed 'I'd like to see something like that, as well as the ability to re-

Moir said the problem with car

the National Retail Federation

ers' preparations and will take

Trying to Manage a Costly: Confusing IT Circus

Let 11 Service Vision Be Your Ringmaster





SAS

WEB



THE IT DIRECTOR is having heart palpitations in the elevator. He have giving speeches. In less than an bour he'll be

in front of the entire IT department of the company. Rebearsing his speech in his bead, he reminds himself not to forget to mention how successful the implementation of the new 1 (employee self-service HR application) has been. The CEO will be there, so he also wants to point out that the 2 (server consolidation program and Y2K* project are finished) and, most importantly, within budget. The elevator doors open. His 3 (pager) vibrates. It's an e-mail from his wife. She asks him to remember to pick up a tin of smoked eel on the way bome. He bumps into the lead Webmaster in the hall who tells him that they've been able to take on new projects since they have dramatically 4 (reduced the backlog) on Website change requests. He makes a mental note to say something in his speech about how well the Web team is doing. He looks down and sees, to his horror, that he's wearing two different color socks.

THE S (BEST PARTS) OF HIS DAY WERE MADE POSSIBLE BY LOTUS.

| Lotus Hotes' HR applications using PeopleCelt." PLotus Domine server performance and scalability. ³Lotus Pager Gateway with Wireless Access. ⁴Lotus Domine developer tools. ⁵www.lotus.com/workthowsh



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Internet Commerce

$\operatorname{\underline{Briefs}}$ 'net is not always best

ulid an audience of 50 million?

Radio	38 years
Television	13 years
PCs	16 years
Internet	4 years

· Users keep value-added nets to exchange data

plans to drop their VANs -

USING THE INTERNET, COMPA nies can take a do-st-yourself ap-

trading partners in electronic still think the speed, reliability data interchange (EDI) format and eliminate the often costly value-added network (VAN) technologies at Bergen Brunfrom the process.

But many EDI professionals said they are still evaluation Internet alternatives and have no

which provide the network. mailbones and other services for EDI traffic - any time soon ELECTRONIC hat'll come. changing infor-mation with DATA INTERCHANCE but right now. I

and security aren't there," said gomery, Ala.

Gerry Madore, manager of EDI swig Medical Corp. in Mont-A survey of so Fortune 1 000 companies conducted last fall

nearly half plan to use EDI - a standard data format for electronic transmission - over the Internet by the end of the decade. But the companies polled said they expect an aver age of only 16% of their traffic to move from VANs and leased lines to the Internet "Do VANs go away? I think

the answer is no," said Forrest analyst Steven Bell, "VANs will change their focus. A VAN will sell community management services rather than network

by Forrester Research, Inc. in Cambridge, Mass., showed that

management services Major VANs such as General Electric Information Services. IBM Global Services Sterling Commerce, Inc. and Harbinger Corp. offer their customers a va-WARK, DADY 50

With legislation, end of Sens. Patrick Leahy (D-VL) and John Ashcroft (R-Mo.) said Tax-free 'net they hope their E-Privacy Act bill will get a full hearing with encryption debate nears shopping a the Senate Iudiciary Committee before the current session of Congress ends in August. The bill would clear the way for U.S.

By Laura Di Dia businesses to use and sell ention technology, now that legiscryption products of any PRIVACY ADVOCATES and law en strength, including 128- and forcement officials have a cou-

lation to allow more sophisticaled products has been introple more months to on head-to- duced



atfi-bit key technology The current limit for encryp tion products as 66-bit keys. though that number will revert to a previous limit of 40-bit keys by the end of the year if new legislation isn't passed. The bill supports the long

standing position of U.S. businesses and industry but it likely to raise hackles in government arde At the beart of the debate:

The government, led by FBI Diractor Louis Erach wants 115 businesses to give it all the keys to the codes to protect national security. The government fears Encryption limits, page 50

revenue foe By Sharon Machlis

The Center on Budget a Policy Priorities (are claps.org) has called the let net Tax Freedom Act o "sig card threat to the adeq cy of state and local go in a report posted on its Porid Wide Web site, the

shington-based researcher, which focuses on it es that affect low-inc rium will mean st d local sales taxes will

Neb — would be "If state and local gove onts are to provide nec

21st century and preserve o visible Main Street retail secthey will have to be al

Yahoo expects no trouble with Chinese site

Howe Kowe

FOLLOWING THE launch of its Chinese-language Web site, Yahoo, Inc. officials may need to look at further localization efforts to balance the demands of Internet users in China Hong Kong and Taiwan with political concerns, according to Yahoo co-founder and Chief

But Yahoo is cautiously optimistic that it won't get into trouble with mainland authorities for offering links to sensitive information. More specifi-

cally mainland officials have told Yahoo that as long as the company provides access to but

contrary elembers in the world however. In 1996, CompuServe in Germany banned access to controversal pressgroups after an uproar in which it was charged with disseminating pornography. A ruling in that case - itself controversial doesn't host controversial Web was muor per en sites, Yahoo wouldn't be The former CompuServe man-Chinese, pape 50

Senate bill targets encryption limits

that if it can't decode any state

of-the-art cryptography, terrorasts could benefit U.S. businesses and privacy advocacy groups contend that giving the government the keys to access everything jeopardizes the privacy of citizens. They want to be able to export state of the art 128-bit key encrypton of they can't, they claim, customers will sumply get it from

foreign manufacturers CHABLY HACKABLE

U.S industry groups such as Americans for Computer Priva cy (ACP), a Washington-based lobbying group, say the current U.S encryption policy - which probabits the export of anything above 56-bit key encryption without a Commerce Depart ment waiver, is woefully made quate and outdated.

Ed Gillestue, executive director of the ACP, said the stan dard limit the governmen wants to impose - 40-bit key - is easily backed even by teen agers. The ACP is comprised of go U.S. businesses and 4n ven

dor organizations "Having a 40-bit key standard is laushable in today's world it's like imposing a speed limit housel on Model T Foods It's totally unrealistic. Even 128-bit key is being supplanted by 256but key technology." Gillespee

He added that the future of electronic commerce relies on industry and consumers feeling crets, employment records, tax returns and medical informa tion won't be accessed by the government or computer backers. 'For those reasons, it's crucal that we reform our current. failed encryption laws," Gille-

Users such as Dave Usher, director of telecommunications at Resolution Corp in South Burlington, Vt., and a proponent of the F-Proper Act. agreed. 'We need to protect umers and our customers from backs that could result from the use of weak 40-bit key encryption," he said.

For some, the showdown be-

E-privacy

Key provisions of the Encryption Protects the Rights of Individuals from Violation and Abuse in Cyberspace Act:

- I U.S. businesses could use and export encryption
- I The government couldn't establish a mandatory key esrrow system

products of all strengths

- Authorities must have e court order or subpoene to obtain decryption keys
- I General export laws would continue to epply including embargoes against hostile countries
- A "NetCenter" would provide lew enforcement ecencies with a venue to keep up with advanced

technology tween the U.S. government and to an-bit key technology." How-

U.S. high-technology vendors and businesses can't hanner "Something's not to give very soon," said Beryl Howell, general counsel in Leaby's office, who is leading the case for the passage of the E-Privacy Act before

the Judiciary Committee. Two wars are. Howell noted, the Clinton administration loosened encryption controls to let U.S. firms export s6-bit encryptor "However, that was only for two years. The window closes at the end of 1008, and we revert back

ell said Several previous preces of lesisolution that favored loosening

the export controls on strong encryption failed to garner the votes required for passage But this time. Morrell and the sens. tors are hopeful the act will pass because it has bipartisan sup port and makes concessions to law enforcement. Those include advocating the establishment of a center where government agencies can work on encryption to keep abreast of the lates

technology advances. II tailer in North Wilkesboro, year 2000 problems rather than new FDI instances." Mash said He added that his company's higher priorities include devel oping a new purchase replen ishment system, an electronic

tiveX) costs \$500.

ACCRAC Inte

(408) 56s-3800

Chinese Web site

CONTINUED FROM PAGE 49

ager was convicted of complicit in 13 cases of spreading child pornography over the Internet and received a two-year suspended sentence; an appeal of

Germany last year passed a law freeing Internet access com panies from responsibility for the content they transmit, but the Bayarran court apparently distn't consider it retmactive Yang's remarks came in re

sponse to questions on how the company planned to handle politerally constitue World Wide With sites "We aim to offer a service

that is comprehensive and in clusive rather than exclusive. Yang said. But Yahoo is sensi tive to the fact that cultural dif ferences exist among users in Tarwan Hone Kong and main land Chura, he added Part of the challenge faced by

Yahoo executives is that main land China's Internet policy or what is sensitive is still unclear. and enforcement is arbitrary

Yang said that any requests by mainland authorities to rewould be handled on a "case-by Lemon writes for Computer

world Hong Kong. Mary Lisbert D'Amuco of the IDG News Service's Munich bureau and Eliza beth de Borry in Brussels con arthused to this report

VANS

nets of services, from providing the network to trackine and translating messages and managing a community of trading

If a transmission fails, the ner can samply contact the VAN to make sure the message

"I'd have to have a better comfort level" to use the Internet, said Gary Kirch. EDI coorator at Ace Hardware Canada Ltd. in Markham, Ontano. "I'd hate to think that transmissions would go into cyberspace and never nurface again." Deb Wyczawski, a program

mer/analyst in electronic-commerce information services at Donaldson Co. in Minnespolis. said many of her company's EDI messages are time-sens tive, particularly those that in value defense contractors that want to know when they can expect to receive inform

"We've incited into the cose bility of being our own VAN, and we decided we didn't want

the headache because we'd need somebody to support that," Wyczawski said. To run things over the later CONTINUED FROM PAGE 49

net, people have to have so many backup systems in place," added hulsane Johnson, a senior business analyst at the filtration systems maker. "If the message| doesn't get there, where do you look? The VAN can tell you if it has an invalid

May Lopez, EDI supervisor at Prestone Products Corp. in Danbury, Conn., said her comnany's VAN. Sterline Com-

merce, offers helpful suggestions to solve data mapping "I would not want to lose that," Lopez said.

Steeling also works to set up EDI transactions with smaller trading partners. Prestone currently does purchase orders with 101 trading partners but invoices with only 15 to 4n, Lopes said. Sterling is trying to get the others onboard so Prestone can further eliminate paper-based

Fred Mash, director of corpo rate trade payables at Lowe's Cos., e home improvement reN.C. said he expects the Inter net to become a more viable alternative to VANs in the next five to in years, but right now EDI users face more pressing catalog and an advance ship no-*People are being assigned to tice system. D

anour SYSTEMS, INC. has an

nounced ImageReady 1.0, im

World Wide Web site design.

According to the Mountain

age processing software for

ng graphics used in

PRODUCTS

DAIMBOW TECHNOLOGIES, INC. merce software that extends financial management syshas announced SentinelTrack terns to the Internet 5.n., software that tracks usage The Santa Clara, Calif., of lave-, Unix-, Macintosh-, company said the software and PC-based applications provides customers, partners across an enterpri and employees with online or The Irvine, Calif., company der entry and access to acsaid the metering tool now in

counting data through browscludes e Woeld Wide Web iner-based applets. The suite interface and runs on Internet cludes the E.Advantage server Famlorer 1.x and Navigator 2.0 with inhibit encountion of or higher. Managers can use any Web-enabled system to der-entry, accounts receivable and payroll applets; and a view software usage data, genrare development kit. erate reports, enforce license reements, set license limits The server costs \$0,00 and each applet (lava or Ac or make nurchasine decisions. Pricing starts at \$999 Rainbow Technologies

View, Calif., company, the software lets users preview what a graphic will look like on the Web, the file size and download duration. The coft ware uses the same interface as Adobe's Photoshop ImageReady costs \$299 Adobe Systems (650) 961-4400

ACCPAC INTERNATIONAL INC. has announced the E.Advan tage Suite, electronic-com

And yes, that is rather fortunate for your enterprise.







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02 TURNS MIND NUMBING COMPLEXITY INTO A COMPETITIVE ADVANTAGE. ISN'T THAT THE OBJECT?

It's really a no-brainer. When your data support needs are too complex for a RDBMS, you need an ODBMS. Something that will simplify your life.

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wrestling with an underpowered database, so you can focus your attention on out-thinking the competition Making the complex more manageable is what Ardent, a top 100 software company with a global network of valued partners, does best. For more examples, visit www.ardentsoftware.com or call 1-800-966-9875.



System

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Briefs Brewer simplifies NT management

year 2000 status report

22%

e 3 f

· When migration from Net Ware tripled staff, Anheuser-Busch turned to point products

Cabletron ATM release

Midrange users move on, to Gigabit Ethernet

By Patrick Dryden wound up tripling the number IS MANAGERS at Anheuser Busch Cos. found out that administering 15,000 users on 700 Windows NT-based servers caused quite a hangover. They wanted to tighten security by centralizing control but

misses

huck Benton

gaps the company

By Bob Wallace

that costly expertise was wasted on mundane tasks. For example, those experts had to change account information for users in high-turnover sites such as breweries and theme parks. Local administrators at those

sites had been al-lowed to add end users, reset passwords and handle basic server care beof needed server experts. And for Anheuser-Busch began to migrate from Novell, Inc.'s

NetWare to Microsoft Corp.'s Windows NT Server But under the Windows NT

more familiar with Ethernet technology. It's cheaper, and we stay with things we know."

The utility's beadquarters runs on a goo-node switched

Ethernet network with a Fiber Distributed Data Interface (FDDI) backbone. "But just be-

cause I prefer Gigabit Ethernet doesn't mean there aren't users

Asynchronous Transfer Mode

(ATM) is a still-maturing tech-

polosy that transmits wice data and video in cells, at speeds up

to 622M bit/sec. Gigabit Ether

net is a newer quickly evolving

technology that carries data at higher speeds, up to 1G bit/sec.

plexity and cost put users off

so much that a competing tech-

speed," said Maribel Lopez, an

analyst at Forrester Research,

Inc., a consulting and research

bridge, Mass. "It Cabletres, page 55

BOOM TO COMPETE One analyst said ATM's com

who like ATM," Benton said.

domain structure, "giving them the ability to do some administeam leader at Negada Power Co. in Las Vegas. "Our staff is

meant we had to

give them all functions," said Mark Dees, information systems specialist at Anheuser Busch

That inability to delegate re sponsibilities belped the IS group fastify its move to cen-Brewer, page 54

PATENT DISPUTES

RSA licenses technology to end lawsuit

By Nancy Wol and Laura DiDio

ESA DATA SECURITY, INC. and Network Associates, Inc. last week reached an eleventh-hour settlement in the latter's patent infringement and copyright lawsuuts against RSA The dispute had threatened

to suspend sales of RSA products that used Network Associates technology. "We're declarins peace to avoid a standards war," said Bill Larson, Network

Associates' chairman and CEO. To resolve the problem, RSA will pay Network Associates an undisclosed sum to license the disputed technologies The two suits - one filed

last month and one a year ago - centered on RSA's acquisitions of Touted Information Systems, Inc. and Pretty Good Privacy, Inc. Before being

Patent, page 54

nology had an opportunity to *Gigabit Ethernet took away the need to move to ATM for

tomers have already decided to **Bay targets** net roamers

ALTHOUGH Cabletron Systems.

Inc. last week finally came out

with a homegrown ATM switch

designed for midstre and large

networks, many Cabietron cus-

By Sab Wallace

dess LAN ver

Chuck Benton, special projects

use Gigabit Ethernet instead.

"We're not a bit interested in

that switch because we use a

mixture of switched Ethernet

and FDDI in our network, and

when we move off IFDDIL we'll

move to Girabit Ethernet," said

nto Clara, Calif. 4

pany will work to increase the speed supported on the Net

Brewer

ONTINUED FROM PAGE 53 tralized management, Dees said. After a year, the headquarter's crew of server admin

intrators enviled from five to is but still couldn't provide timely support, he said. The 'eccentricities, peculiars

ties and failures" of Windows NT cause many users to strug gle, especially when trying to recentralize server management said Valerié O'Connell, a systems and network management analyst at Aberdeen Group, Inc.

in Boston LEAVE IT TO IS

*Life can be precarious with Windows NT, but IS groups tolerate this situation for some amazing reason," O'Connell said. After Microsoft sells Windows NT in the boardroom, it is up to IS to "cobble together something workable" with add-

on tools, she said. All-encompassing management suites attempt to address sion Critical Software and put it

the server and change-management issues of Windows NT, but they require reorganiza tions, the outlay of millions of dollars and a year or more to whime results

"Life can be precarious with Windows NT, but IS

groups tolerate this situation for some amazing

- Valerie O'Connell

Aberdeen Group So IS may prefer the tactical use of point products focused on Windows NT management. Help is available from vendors such as Hewlett-Packard Co. in Palo Alto, Calif.: Mission Critical Software, Inc. in Houston;

and Net1O Corp. in Santa Clara. Seeking a quick fix, Anheuser-Busch reached for Enterprise Administrator from Mis-

to a pilot test involving 1,500 users "to make sure the tool could do what they promised, Dees said

Not only could central IS managers now use the tool to routine changes, but they also could keep better track of all administrative changes than was possible with NetWarr or

Windows NT, Dees said. Routine problem-solving he came faster, too. For example, password changes that took to to is minutes by "high-dollar central administrators" now take designated business unit staffers about two minutes.

The stress level also dropped for central staff. "For the first time we actually had time he tween phone calls," Dees said Freed from answering calls. staffers went back to designing systems, configuring applica tions and planning capacity.

Security improved because we could reduce the number holding the keys to the king dom and show corporate audi tors an administrative transaction trail * Dees said [7]

Patent dispute resolved

CONTINUED FROM PAGE 53 acquired by RSA last winter, both companies had signed sep-

arate deals that let them license RSA's BSafe cryptography tool kst. Trusted Information Sysboth deployed the BiSafe tool but in

their respective networking fire wall and virtual private networking security prod

But Network Associates offi cials claimed that once the two companies were acquired by

RSA, the licensing pacts that the two companies signed with Network Associates became invalid because they weren't trans-Gerable NO LOSERS Users and analysts said the deal was a win-win for all concerned and will belp avoid unnecessary confusion about product usage.

"Long, protracted lawsuits same no one but the language said Gary Lynch, an analyst at Gartner Group, Inc. in Stamford, Conn. "And in the end, it's tems and Pretty Good Privacy the users who suffer the most

No one wants to risk having noncompliant old the dool was a in-win for all conware, which can potentially lead to fines - not to mention the question of who's liable for service

and support in the event of a problem." "That's good news," said an MIS manager who uses products from all three firms and who requested anonymity, "I have enough hassles trying to keep my network secure with out worrying about whether or not the licenses for my software packages are null and void."

Weil writes for the IDG News Service in Boston

HEWLETT'

Microsoft

Cabletron ATM release

CONTINUED FROM PAGE 53

did that by being a less expensive alternative [that] chews up less handwidth with overhead.

more efficiently than ATM. For example, the Cabletron which generates more over-ATM switch costs about the head," he said same per 155M bit/sec. port as ports on some Greabit Ethernet switches that provide more than

six times additional handwidth Cabletron's new SmartSwitch 6500 ATM switch can be used in data centers, in campus backbone networks and at the edge of wide-area networks. It will

ship next month. But it will be tough to find

We're going to stay on the Fast Ethernet [and] Gigabit Ethernet track to support our imaging system because that approach is cheaper, and in the tough health care market, pricing is a bottom-line issue," said Tom Landis, chief network officer at the University of Marypopular in the health care in land Medical System in Rults

"We see no reason to switch ager at Morehead State Univer- in Concord, Calif. [3]

sity in Morehead, Ky., said there are good reasons to choose ATM. "What attracted us to it was its avalability and its ability to support voice, data and video because Ethernet Itechnologies over a single network," Eldridge can handle our application

We started our ATM backbone two years ago, before Gigabit Ethernet, It was ATM and Fast Ethernet Ithen). But for what we wanted, ATM was the only show in town." The school plans to add video and voice to the data that runs over its ATM

network, Eldridge said. When it comes to Bank of America, Inc.'s trading floors, Gigabit Ethernet is "the likely uperade path," said Dennis Mitchell, network manager at the bank. "We looked at ATM 18 to 20 months ago when we were deciding on a backbone network and it wasn't far

enough along so we went with But Mitchell said part of the bank is interested in ATM as a means to build a campus backto customers, the company said bone network linking buildings

ATM has been particularly

Mike Eldridge, network man-

By Joy Dietrick

INTERNATIONAL telecommunica tions consortium SkyBridge LP has announced that it is expanding the capacity of the global communications network it plans to roll out during the next three years The consortium led

Alcatel Alsthom SA in Paris, plans to offer global telecommunications services using a network of low-orbit satellites that it will bunch by 2001. But rather than the fix satel lites it originally had plant the group will launch 80 satel-

lites, increasing planned capacity from 144G bit/sec. to 200G bit/ses SkyBridge, which expects 20 million people to use its pystem, wanted to give local telecommunications vendors the option to offer high-capacity global access SkyBridge will offer Internet access, videoconferencing, LAN and WAN connections, and interactive entertainment services with data transfer speeds of up to 20M bit/sec. downstream and up to aM bit/sec, on the uplink. The company doesn't foresee any delays on the launch of its system in 2001 be-

cause of the capacity increase

officials said

clude Loral Space & Com cations Ltd. in New York.; Toshiba Corp. and Mitsubishi Electric Corp. in Tokyo; Sharp Corp. in Osaka. Japan: Spor Aerospace Ltd. in Toronto: France's Aerospatiale SNI; and and a Belgian investment

house. Districk writes for the IDG Novs Service in Paris





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Software

Databasas + Devalorment + Operation Systems

Briefs Gerber tightens inventory control

For every 100 application development projects,

there are 94 restarts where developers actually stop the project and start all over again. Rase: 365 IT executives a large, midsize and small comnies and personal interviews

By Craig Stedman

GERALE PRODUCTS CO. IS WORK ing with grocery stores to make our their shelves don't ever lack for strained peas. But writing the required software left the baby food maker feeling a hit strained itself To date, Gerber has taken

40 big grocery MANAGEMENT management for chains. An electronic data interchange (EDI) setup feeds information on sales of Gerber prod-

ucts to the Fremont, Mich., company, which uses Manugis tics Group, Inc.'s supply-chain management software to sched ula new deliverier The idea is to reduce invento ry costs at both ends and give store managers an incentive to huy from Gerber. But the need

manager at the company

them only bare through raw EDI transm

to find important data So Gerber pushed Manugostics to come up with a produc that automates both steps. Later this month, Gerber plans to be the first user to go live with new data transformation and messaging software that Mamugisncs developed with Swedish

to write code that translates all of the EDI messages into a common format has slowed down Gerber's ability to add grocers, said Dennis Khoe, an information systems project

And custom-built software for sending alerts and other messages to Gerber's inventors SUPPLY-CHAIN The minimum they need," he said. Planners of ten have to resort to combing

> vendor Frontec AMT food Gerber sells in the U.S.

KEEPING THE SHELVES STOCKED How Gerber's upgraded baby food inventory management system will work

O Grocery stores will send sales data via EDI links 2 Software will translate different EDI transmissions in to a single format

 Alerts about events such as in-store promotions will be automatically sent to Gerber inventory managers

O Product deliveries will be scheduled by Gerber to

Gerber will use the sales data to forecast production

Gerber is counting on the nackaged software to help tripl the amount of inventory it manages for grocery stores. Of the \$700 million worth of haby

Gerber, page 58

Java, page 58

WORKGROUPS Lotus improves app integration

in SmartSuite By Roberta Fusaro

Java in, C++ out at university · Effort aimed at building local IT expertise

Re Mesan Scott THE UNIVERSITY OF HOME KONG has prolaced C++ with lava in as programming curriculum and now requires engineering students to most with local

companies to build Java-based The changes seek to foster leading-edge technology innovation, at the bebest of one pro fessor who said he wanted to in ject his traditionally theoretical electrical and electronic engineering courses with a little re-

ality - which Java had the ingredients to do "I would like to put some thing into (the courses) so the students feel like they are in touch with the forefront tork nology, and lava is the one." said Chris Yeung, associate pro fessor and director of the Acad emic Authorized Java Center. Also, the local community

benefits by developing a Java architecture, so local comp that want to move into the local and international arenas can do so at minimum expense. We want to equip local IT profes-

sionals with this skill set." Young said With the latest laws technolo

gy under their belts, students are expected to complete every thing from writing Java-based code to building user interfaces.

including the artwork. Yeung said. So far, the program has fostered projects that meet industry-grade specifications for the transportation, financial, industries, he said. One such project, subcon

um Edition, an enhanced version of its workgroup collaboration suite, later this month

The Millenmum edition includes improved integration among applications in the suite and with back-end systems. It also is more compatible with Lotus ESuste and Microsoft Office suites. Lotus officials

LOTUS OFVELOPMENT CORP. IN Combrader Mass is slated to

announce SmartSuite Millenni.

The package also includes Lotus FastSite Internet Publisher, which allows users to most multiple SmartSuite and Microsoft Office documents to a cornorate intranet and still retain navigation abilities.

And IBM's ViaVoice voice recognition software, already part of the suite, has been extended to Lotus 1-2-1. That will make it easier and less time consuming for users to enter data into spreadsheets, officials said. Voice templates will be made available for downloading from Lotus' World Wide Web

site (unnuloted.com). SmartSuite Millennium Edi tion costs \$100. Upgrades for users of SmartSuite, Microsoft Office or Corel Office are \$149.D

Snapshot GROWTH RATES

\$1.78 \$2,258 \$400M \$435H \$399M J. D. Edwards 52306 es lice 10 \$14.48 (inch

Gerber's inventory plan

CONTINUED FROM PAGE ST each year, only 27% is managed by the

company now, Kline said. Its goal is to reach 80% within two years. The company doesn't charge for the perntory management service, treating it instead as a way to build customer loy-

alty and get sales data that can be used to fine-tune baby food production plans. Forecasting and planning is where we think we can get a competitive advan-

tage," Kline said. Tightening inventory management is

a top priority for cost-conscious retailers and their suppliers, said Ann Grackin, an analyst at Benchmarking Partners. Inc., a consultancy in Cambridge, Mass. "A store is one big sinkhole of inven-

tors," she said. "You obviously want stuff to be available for customers to buy, but

you don't want too much." However, EDI "is one of those nonstandard standards that makes it a pain in the butt" to work with, said Joshua Greenbaum, an analyst at Hurwitz Group, Inc. in Framingham, Mass. That is prodding Manugistics and other application vendors to put together packaged EDI gateways, he added

VED MESSAGING

Gerber has been testing the Manugistics/Frontec Intelligent Messenger software since last August while waiting for its messaging capabilities to be beefed up. For example, the product initially generated "hundreds of messages" out of a single EDI transmission instead of grouping multiple alerts into one message. Kline said.

Manusistics, in Rockville, Md., already sells a version of Intelligent Messenger with its transportation manag ware. Retailers such as The Gap. Inc. and Dollar General Corp. plan to use that version to route messages among their transportation managers, trucking companies and manufacturers

Dollar General currently relies on "a kludge of systems and manual communications' to arrange product deliveries to its distribution centers, said Tom Murin, director of business systems development at the Nashville-based discount retailer. "It works, but there's so much potential for things to get lost."

Java in, C++ out

tracted by Hong Kong Telecommunica

tions Ltd. and tendered by the Airport Authority, is a lava-based World Wide Web one that allows users to tap in to transportation information on the Airport Express project, the Mass Transit Railway, the Kowloon-Canton Railway

and tourist information for the new Young said be hopes his initiative will change the community in two ways. First. Hong Kong needs to develop its

own technology to de-emphasize its reliance on service-heavy sectors and create a buffer against economic downturns such as the current one, be said. Second, Yeung said the education sys tern needs to start supporting innovation

and buck conventional teaching techniques so students can be ready to contribute innovative technology to the community D

Scott writes for Computerworld Hong Kong



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Servers & PCs

Briefs More than four processors a waste

► Users say NT 4.0 can't take advantage of many new offerings

ðv laiksimar Vliayan

is you build it, they will come. But will they really "It" is ever-bigger and more scalable Windows NT servers And concern about NT's relative lack of scalability compared with Unix is prompting system vendors to offer systems that start with one processor and

can be expanded to eight. That promises users the no tential of running larger, contplex applications — such as data warehousing, enterprise resource planning and electronic commerce - faster.

But does NT let users take

Samples of scalable Windows NT hardware:		
endor	Processors	Comment
equent	Up to eight	Capable of running NT and Unix on the same server
nisys	Up to 32	Capable of running NT, Uniz and MCP/AS on the same server
CR	Up to eight	Capable of running NT or Unix on the same server
P	Up to eight	Can run NT or Unix on the same server

advantage of the scalability right away? "The short answer to that is 'no,' " said Harry Tie, an analest at The Yankee Group in

"Today, NT scales very poorly

	Processors	Comment
ent	Up to eight	Capable of running NT and Unix on the same server
3	Up to 32	Capable of running NT Unix and MCP/AS on the same server
	Up to eight	Capable of running MT or Unix on the same

once you get beyond two to four CPUs," he said. So having sixor eight-processor systems is

unlikely to buy users much in terms of additional scalability or Processors, page 62

IBM clarifies Seascape

storage line By Nancy Dillon

raw announced three storage products last week that should help clear up the murkiness surrounding its Seascape storage line.

Seascape promises easily upgradable products based on interchangeable storage building blocks such as RISC processors and serial disks

The most important intro duction was the IBM Versatile Storage Server (VSS), VSS is a RAID Level 5 array that can store between 230G bytes and 1.aT bytes of data and concurrently attach to Unix. Windows NT and AS/400 servers. It is

Seascage, page 62

Notebooks get common docking stations



re docking stations or rts, which simpl CARL KATZEFF, vice presid and chief information officer at Kraft Group in Boston, is like many information systems managers: He wants to invest in a variety of notebook comnuter lines from his preferred sendor but share common comrats across the models. With Katzeff's planned investment in NEC Corp.'s Versa line, that desire will begin to become a reality. Kraft's 100 mobile users often travel among

the company's six sites and

Ry Kim Girand

would benefit from common docking environments, Katzeff "We need to just work when we get someplace - not fiddle around and find something to drive)

plug in to," he which COMPUTING Kraft, owns the New England Patriots football tram now uses five NEC notebook

product lines Both NEC's 7-lb. LX high-per formance line and 4.8-lh. SX thin-and-light notebooks share common components - from

the docking station to the AC adapter, memory modules and VersaBay devices (including CD-ROM, batteries, digital video disc drive, hard drive and Zip

Owerstl analysts said most notebook makers are beginning to pay heed to corporations demand

ing laptop lines that include mis-and-match components to make asset management easier Frustrated, in part because he couldn't interchange batteries liec netabooks, pere 6

Management is next for PCs

By April Jacobs

DELLS AND WHISTLES aside, corporate users and analysts say performance and reliability have been the biggest improvements on the desktop over the past few years. Other additions, such as management, haven't made the list yet, mainly because they aren't easy to use

Business users said that although conveniences such as to and video make the deskton a nicer place to be, the ability to access data more quickly

and toggle among applicati lets them work more efficiently We've seen improvements with all of our applications in terms of desktop [publishing]. database management and online processing," said John Delta, director of advanced technologies at the Nandaq Stock

Market in Washington. At Nasdaq, like most high-end financial firms, the ability to access data and make decisions contributes to the bottom

So, although PC makers tout

new features, such as accel erated graphics port graphics enhanced video and sound, and new standards such as Univer sal Serial Bus, users and anahysts say those features aren't as necessary or mainstream to make them appreciable.

PC makers have also been fo

cusing on issues such as lighter leptops, slimmer desktops and more manageable platfi They have introduced desk tops such as the NetPC - a PC without floppy disk or Industry Standard Architecture slots -Management, page 62

sers and and og the pest to

Lighter lapto slimmer PCs

Choosing a quality color system





for your network is as easy as



Processors wasted on NT 4.0

performance, at least for the

moment he said It used to be that software was limited by the hardware But with NT there has been a reversal of roles, said Steve Pounds, a controller at Security

Forces, Inc., a promder of secu rity services in Charlotte. N.C. "It's like driving a race car on the interstate." Pounds said. You have a car that can go 200 mph, but the speed limit is 65

WINDOWS NT 5.0

mph."

Microsoft Corp. is expected to address those usues when it releases Windows NT 5.0. sometime in mid-1999. But in the meantime, hardware ven dors have tried to pick up the slack by building scalable servers with high-availability

and rehability features such as High-end server vendor Uni sys Corp. is the most recent vendor to try. The Blue Bell, Pa. based company announces plans to build a 32-processor NT server that can also run Unix and its proprietary MCP/ AS operating system. Other dors include NCR Corp., Data General Corp. and HewlettPackard Co., which have all announced eight-way NT servers Digital Equipment Corp will soon support NT on its 14-way TurboLaser Alpha server. And Sequent Computer Systems, Inc. is building an right-way server that can run both Unix or NT on the same box

"It's like driving a race car on the interstate. You

have a car that can oo 200 mph, but the speed

limit is 65 moh." - Steve Pounds. Security Forces

take advantage of the perfor mance in some of today's syr Some of the features on the tems," according to Rich Par systems - such as clustering tridge, an analyst at D. H and redundant componentry -Brown Associates, Inc. in Port can make NT a more stable en-Chester, N.Y. Those who are thinking But there is little that can be

done to make NT work optimalservers may not be able to take ly beyond four processors, Tse full advantage of them for the moment. But the systems It is because of that short-

should provide plenty of room coming that Millipore Corp. will for future needs, Partridge continue to run only Unix on

at State Farm. He said by year's very expensive," Casey said end, his company will have re-Now that is changing with prod duced a8 data centers to three ucts such as IBM's VSS and the in Dallas, Phoenix and Atlanta. 7700 array from Santa Clara He said most of his consolida-Calif-based Hitschi Data Syn tion will proofer IBM Ramac tems Corp., be said But users should be aware System 390 storage systems.

its 16-processor Sequent serves

said Kevin Danahy, manager of

corporate intranet computing a

The company expects to

contch ower to an NT-only envi

moment in about two to there

years. But for the moment, Mil-

only on dual and quad proces

sors servers, Danahy said.

lipore will run Windows NT

We have been contempla-

ing the idea of doing away with

Unix" for some time, Danahy

said. 'But because NT hasn'

been scalable broomd four

processors, we aren't doing it

"There are a lot of things NT

has to do before it can really

about purchasing large NT

nght away," be added.

MORE WORK MEEDED

the Bedford, Mass., company.

but that "[VSS's] cross-connecthat [VSS] is still in its early too capabilities give it great postages, so the bells and whistles tential to save management such as mirrorine software and mainframe connectivity [stan Michael Casey, an analyst at dard in EMC Corp. arrays Gartner Group, Inc. in Stamford, Conn., said the VSS an-

neuronment benefits users be-IBM also announced the cause it brings pricing pressure Watch software and a second recration IBM Virtual Tape *EMC's Symmetrix product Server (VTS). StorWatch is was the only game in town for World Wide Web-based softwan for disk-asset management and

capacity planning. A version of StorWatch called Versatile Storsee Specialist will be a standard feature on VSS IBM's Enhanced Virtual Tap Server, due in the fourth quar

ter, will allow up to four Escon champels and up to 864G bytes of cache. IBM's VTS uses a ser ial disk array between a main frame and a tape silo to cache and stack data sets before migrating them in a man

Management is next

CONTINUED FROM PAGE 59

BOTTOM LINE BULES

Con

atter

services at Nasdaq.

Toshiba Tecras recently

limited compatibility am

"It's really a challenge to do."

said Phillip Redman, an analyst

at The Yankee Group in Bos-

ton. These guys don't make

their own peripherals, and to

get [components] to a level

where they work across the

he said

lowing suit.

groo series

ders, but they don't improve the

bottom line. And NetPCs are

designed to meet the needs of poet more users uniformly. Bu overwhelmed information sys users for valid reasons need in dividual and sometimes unique tems departments that are in search of the most managrable bardware," he said.

Therefore, what PC makers need to focus on is manage ment, users said Lighter laptops may save shoul

"There is this an uneasy ten "Installing software or hard sion between what the network ware still can leave people feel administrator wants and what ing like a moving company justhe end user wants," said Leon came," Kay said lames, manager of interactive "That's why managing chen devices still isn't a real story un til people can actually begin to use it easily," be said. (7

vsewed by most users as too restrictive, according to Roger Kay, an analyst at Frammeham Mass hased International Data Even some 15 managers

NEC notebooks

CONTINUED FROM PAGE 51

"What the 15 group wants is

to control the PC so litt can sup-

ong any of the company's book that accepts a variety notebooks, Gary Malhiot, vice of components that can be swapped out when the machine president of MIS at petroleum retailer Olympian/CFN in San is running loe Federer, vice president of

Francisco, switched the compa my from Fuitbu notebooks to IS at medical supplier HBO 8 Co. in Atlanta, which has 3,500 "It was terrible." Malhiot said mobile users, said its notebook The Furituus needed new hattervendor. Toshiba, is promising ses when they were upgraded, the same interchangeability



The new MEC Werse SX weighs just 4.8 por

Federer said some parts are already compatible on the Tecra notebook line, but better com natibility will make their users happier because 'you always have a part on hand, and tha shrinks downtime," he said.

whole category is practically immediate." To date, one of the biggest ompatibility problems among lines has been the docking sta tion, which often costs between \$500 and \$700 extra when companies upgrade. D

Seascape CONTINUED FROM PAGE 59

scheduled to ship Aug. 21. A version that adds System 190 mainframe support is due next "(VSS) marks a para

shift for IRM that I think is great," said Mike Spotts, an enprise storage business analyst at State Farm Insurance Co. to Bloomington, Ill. "It's not as oprietary as previous IBM adacts. I think it's the best unifestation of Seascape so

otts is working on a mu sive server consolidation effort a while, so it could afford to be

HEW PRODUCT

to the market

MIC CORP. has anounced the P\$790, a 19-in. ort-depth monitor with a tprint comparable to that

of a standard 15-in. monitor. According to the Walnut, peny, the mon is both PC- and Macinton

signed for designers, artists and other business users who require large-screen per nce in a small foot-The monitor costs \$840.

costs in open environments.

ner that fills tape cartridges completely.O

PPING COMPON NEC has managed to do it, in part, because of its VersaBay a universal bay on the note-

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is leading it

By Kathleen Melymuka

Jack Welch always puts his money where his mouth is, and this year, the chairman and CEO of General Electric Co. will see whether his \$2 billion bet on the Six Sigma quality campaign pays off.

He's also betting on the guy playing the hand: Chief Information Of ficer Gary Reiner, "When you're launching something like Six Sigma, you want somebody with great respect that can make it happen," Welch says. "Gary has all the leader ship skills and the mind-set." And Welch adds, Reiner has "great respect across the organization. He'a got enormous brains, great energy.

"I'm an enormous fan." Halfway through Welch's highstakes, high-energy, five-year gamble on Six Sigma, the odds look good GE's current quality performance between Three-and-a-half and Four Sigma — is three to so times better than it was in 1995, and incremen tal improvements along the way are starting to pay off. If all goes according to plan, this is the year Six Sig ma hits its "sweet spot," where ben cfits skyrocket and costs level off. If that happens, there will be two big winners: Welch, whose selfdescribed "monomaniacal" dedica tion to Six Sigma has made it GE's

top priority, and Reiner, who moved from corporate development to CIO to focus GE's vast but scattered in formation technology resources on the Six Sigma prize.

NO GUTS, NO GLORY Six Sigma is the mother of all quality efforts (see box below). To achieve it, GE will have to eliminate 0.990.5

Sigma - 66,2 ur Sigma - 6,210 Fire Sigms - 230

Six Sierra - La

of every 10,000 defects in its processes. That's a tall order, but it's one that would add \$8 billion to \$12

billion to the bottom line. "We believe Six Sigma is the most fundamental, far-reaching and potentially significant initiative ever undertaken by GE to optimize its competitiveness," says Nicholas

bout Six Siema

Six Sigma, giving a glimpse of what

m Six Si proof's start in

Securities, Inc. in New York

Six Sigma is different from other quality drives because it relies on customers to define what a defect is, then uses rigorous data gathering and statistical analysis to drive out defects. "Six Sigma is attractive because it isn't anecdotal; it's quantitative." Reiner says. "You know Heymann, an analyst at Prudential whether you're making progress."

THE GE DIFFERENCE

But if GE ain't broke, why fix it? GE is among the most profitable companies and, according to Fortune magazine, the most admired. Its stock is the most highly valued in the world

But Welch says he believes in the "infinite capacity to improve every thing." Though Six Sigma has had mixed success at other companies, GE stands to do better because of its culture, says Noel Tichy, author of The Leadership Engine: How Winning Companies Build Leaders at Every Lea-

el (Harper Collins, 1907) Companies have tried to use Six Sigma as a cultural change tool. Tichy explains, but at GE Welch changed the culture first. "He cleaned up his portfolio, got the business focused, got good players in place, did Work Out ja company-



people — specialists and generalists — would be to meet customer espectations. Then it designed the call center and will monitor performance going forward. Framp defects in a manufacturing

process is one thing: fixing defects in a service is harder. Toughest of all may be fixing defects in communications between people, but GE is targeting those as well. For example, customent complained that all-hough they worked up specifications for new medical systems with GE salvespeelp, the final products often weren't what they thought they had ordered when they had ordered they had ordere

To solve that problem, IS is building a medical systems product configurator — a laptop software tool that walks a customer and a salesperson through options. Using built-in rules for design, manufacture and pricing, it allows the customer to order only what can be dilivered at a certain price. When the

The Reiner Fil

wide exercise in boundaryless thinkingl, changed all the management processes, then came along with Str. Sigma on top of that," he says.

FULLY ENGAGE

Reiner could be the poster boy for Welch's ideal of 'boundaryless behavior,' defined as business behavior that tramples rank and bureaucracy to engage every mind in the company in pursuit of the best idea. "He's a guy who can dive into de-

rie 23 gay who can dive into octal, and he expects enveyhody else to be with him," says Bob Corcoran, manager of human resources for IT. 'He wants people to be fully engaged. Regardless of your background, he expects prople to weigh in with an assessment on an issue. And he expects you to push back and not just roll over 5 years have Reiner is known for recruiting

and growing leaders. You can measure a lot of people by the quality of the talent they hire, and Gay an recruit better than anybody I've met. 'says Welch, adding that Renner has personally brought more than 50 top people into GE. 'Gary always goes out and finds the best, and they like working for him.'

Reiner has developed a comprehensive, continuing leadership edu-

cation process within IT that takes employees from the first weeks at GE through the upper concurier levels. "He's been incredibly good at thinking through the whole leadership pipeline," Tichy says. "and he's regularly involved as a coach and a treacher."

TECHNOLOGY AS ENABLER Reiner nees IT as the supporting infrastructure for Six Sigma and the

tool for accomplishing individual projects.

For example, an underprinning of Str Sigms is that customers define a defect. Reiner developed an in-tranet tool called the 'customer disablosal' that juvites more than 'Looo key customers to identify the most critical-broughty (rCfQ) aspects of GE products and services, then define a good performance and

a defect. For example, if a customer chose speedy product delivery as a good performance — say, fire days, Anything slower is a defect. Having defined the CTQ aspects, customers use the dathboard to provide regular, precise, quantitative feedback on how GE's processes measure up, giving a mapshot of its preformance at a given moment and

a trend line over time. Reiner also developed an intranet site that helps all GE employees focus on the

Six Sigma process. It provides information and status reports on every project and shares best presides among the 6,000 "black belt" Six Sigma experts, who work full-time on the efflort, and the 30,000 "green belts," who integrate Six Sigma poet, exis into their regular workloads.

THE MANTRA
The Six Sigma mantra for approach

ing any process is 'define, neasure, analyze, improse, control,' and IT enables many of those activities. Retiner uses IT to collect baseline quality data, model defect-free Six Sigma processes, automate those processes to lock in improvements and monitor them to assure they remain defect-free. For example, customers of a call

center in GE's plastics business salet calls weren't being answered fast enough. The information systems department gathered streams of data on call whatme and types of calls by time of day. It then used a simulation program to deversing what the right number and mix of order is complete, the data is downloaded into the order-entry system at GE medical systems, removing any opportunity for defects based on misunderstandings.

THE BIOGEST PROBLEM

This year, IT is belging facile what shence describes as the biggest problem Six Sigma is facing mentoring the increasing number of green belts at they work through their Six Sigma projects. Up to now, black belts have handled mentoring, but Reiner wants to keep the number of black belts constant, while the numer of green belts will triple by the end of the year. Part of the solution will be focus.

concentrating Six Sigma projects on a few big CTQ aspects, such as ontime delivery and product quality, identified by customers in each business. "That gives us a critical mass of black belts focused on one thing, so that they can more effectively mentor the areen bels. Remtively mentor the areen bels. Rem-

er savs

GE's quality questie, page 66

CONTINUED FROM PAGE 65

The other part of the solution is pure IT an intranet-based, expert system software tool that will serve as a green belt mentor. By the end of the year, Renner says, the tool "will be able to basically do the project for the green belt."

one is considered for promotion to any professional or managerial job unless he

\$45 (hardcover)

has at least begun four weeks of formal green belt training, and 40% of each of ficer's bonus is tied to success in driving Six Sigma inside his business But it ones deeper. Actording to Hey-

mann, 91% of GE employees say the company is serious about becoming a quality leader. Since a typical company receives ratings of 60% to 70%, he says, GE's score is literally off the scale. The Six Sigma deadline is no accident,

Heymann says. It falls just around the time Welch plans to retire. Whether GE can make its five-year deadline is highly doubtful, but by acting as if they believe it's possible. Remer and his people have taken more costs out of GE processes than they anticipated: \$100 million over

target last year alone. hose numbers are rooted in a finan-Six Sigma permeates GE's culture. No cial sign-off at the end of each Six Sigma project that details actual savings, Reiner says. "We have taken a very firm

stance on quantifying the benefits from a dollars point of view," he says.

But the effort gets harder as Six Sigma sets closer. Four Siama requires a 10-fold improvement over Three Sigma: Five Sigma, a 30-fold improvement over Four Sigma: and Six Sigma, a 75-fold improvement over Five Sigma. "Whether we get Six Sigma by the year 2000 - it's a tough call," Reiner

But making the deadline isn't really the point because Six Sigma is a direction, not a You never stop, Reiner says. "You go to Seven: you go

to Eight." This is the year GE finds out whether the Six Segma pot will be as big as expected. If it is, Welch can cash in his chips a winner and Reiner remains a big player. If not, Welch leaves

the table disappointed and Reiner could be dealt out But for Reiner, that's not likely. "He'll deliver." Tichy says. "He's going places. He isn't even close to where he's going

Melymuka is Computerworld's senior editor management

to end up. "

SOURCES OR IS ANAGERS

ense & Respond: Capturing Value in the Network Era By Stephen P. Bradley and Richard L. Nolan Harrard Business School Press, Boston; 112 pages

For information systems leaders who can't get to a Harvard Business School seminar, this book is the next best thing. Based on presentations at a Harvard Business School collo quium called "Multimedia and the Boundaryless World," the book argues that the Internet enables companies to compete

in a new way: Traditional "make and sell' strategies based on forecasting and planning are giving way to "sense and respond" strategies that discover customer needs in real time and meet them with custom products delivered at lightning speed.

The authors cite Microsoft Corp.'s Windows or beta testing as a classic example of the sense and respond strategy: using technology to create a community of users and developers cooperating throughout the ent cycle. They contrast that with the make and sell strategy of IBM developers, who generally worked in relative

isolation and froze product designs early. The authors make a case that the sense and respond strategy reduces cycle time for developing extremely complex products and yields high levels of innovation

The book is full of fascinating examples, such as the National Bicycle Company of Japan, where in-store computer aided design and manufacturing systems fit customers to custom bikes, then send the specifications to the factory. The bike is in production by the time the customer leaves the shop Sons

€ Respond looks at business opportunities in multime-dia, product development on the Internet, virtual markets and ographical information systems. It will get you thinking

- Kathleen Melymuka

JARGON JUDGE

0EM

No, it's not a yoga chant (that's "aum") or a rock band (that's REM) or any of the characters in Star Wars. It's not even "original equipment manufacturer," although that's

That's right. In OEM we have not just an initialism (formed by using the first letter of each word in a compound noun) that a good many people aren't familiar with, but we also have a double jeopardy of sorts. Even if you know what its words are, you still won't know

what its letters stand for An OEM is a reseller

what an OEM is. Acronyms and initialisms by their ature risk alienating readers. And knowing what their letters stand for doesn't always help. (flust because a publication spells out DHTML as Dynic Hypertext Markup Languag doesn't mean the reader has any ides what that is, barring further explanation.) But at least in those cas-es, the words bear some relation to

function. OEM's words are about qu grees off. For the record, a reseller is a co ny that buys components from other companies and uses them to build products. So a computer reseller is a company that buys chips, mother-

ds, hard drives and all the other gs that go into a PC and puts them together. Indeed, that could be considered manufacturing, but since the OEM doesn't build all the parts, it rdly makes sense to call it the origi nal equipment manufacturer. Yet our

And adding insult to injury, OEM often ism' just a noun. It fre ently joins the ranks of other linguistic af fronts - such as impact and priority - in which nouns heinously turned into

verbs. So the guy who says, This pro going to be OEM'ed" is probably not only confounding many of his listeners, but he's also committing an offensive - or should I say crit

What to do? I proffer my usual ad vice: Exercise restraint and use the real word - reseller - instead. Or even better, explain that you mean a co is assembler when you mean OEM the noun, or that your product is going to be sold to a manufacturer for inclusion in its goods when you mean OEM the verb. That will put it all together for your audience. Just like an OEM.D

Does any high-tech jargon have you steamed? Tell Anne McCrery, former sputerworld copy desk chief and now assistant sections editor. Her Int



INTRODUCING INPRISE" CORPORATION.

Wouldn't it be nice if your corporate information systems were readily available to all those who needed then? Better yet, if they were reliable, estable, and secure? And could be developed, deployed, and managed with ease? We think so. And that's why we are proud to introduce lorsus Costroacnos, a new company dedicated to the radical simplification of distributed enterprise companies.

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To find out more about how we turned years of combined experience into a complete solution for integrating the enterprise, download our whitepaper at www.inprise.com/about/strategy/



te shortage of systems personnel is a temporary phenomenon.

A historical study of all shortages — whether they were for food, gold, oil, land or fish — teacher as the state of the st

QUAL
IS THE
ANSWER
TO THE
LABOR
'CRISIS'



The economics of rising prices will always generate corrective measures that submarder deliver a sufficient supply.

SHORTAGE AND SELF-INTEREST Vendors are happy about any "shortages"

because they make selling easier and prices higher. The recent discovery that there was a shortage of systems and programming personnel was welcomed by just about everyone who stands to bene-

For example, the Information Technology Association of America, a trade organization that represents primarily the computer industry, favors more liberal immigration quotas for computer experts. The National Research Council and the Computer Research Association both of which mostly reflect the views of academia, favor more subsidies for computer departments. The Software Pub lishers Association, which represents lobbies for Microsoft, Oracle and others. advocates spending public money to boost the supply of programmers. Computer people love the news about scarcity of talent because it enhances their sense of importance and legitimizes requests

for larger than average raises. For someone aspiring to become a computer professional, enter the headhunting business or form a software company, it would be useful to understand how real and sustainable the current shortages are.

SHORTAGES DON'T LAST There's a simple way to eliminate short

ages: cut waste and improve productivity. There's no lack of examples. Every few years New York runs into

every see years heve from runse into submining water short-fills because much of its supply goes to scane from leadingpies and pose supply management. The land-orth Soviet Union experiences the land-orth Soviet Union experiences for the crops were left notting in fertile fields. Only it years ago the price of godd was respected to rate to more than \$1,000 an ounce on account of thorthings. Speculative lost more yeben a drop in demand brought the price down less than a quarter of what was or-

The yesteryear scarcities of oil were supposed to lead to prices of more than

5 too a harrel Newadays, oil costs less, un real dolliers, than when the scarcity scare started. The food famines and fuel shortages that were accepted as a reliable prediction in the 1960s have now been replaced by surpluses in all raw materials, with pitcs dropping reliative to the artising global personal income.
There are many reasons to believe that

There are many reasons to besieve that the IT laber "criss" will follow the pattern resistance to rising below cross, astomatous of programming tasks, standardiants of applications, adoption of sucontinuous programming tasks, stantuning the programming tasks, stantuning the programming tasks, as to stand a programming the programming to treat the solution to their problems. For stand, they will start housing ways to deliver preserve productively through improved software quality.

THE DEMAND-MANAGEMENT PROPONENTS

to Early this year, a task force report for cased on how software productivity and only the case of the control of the control of the state Rubin. chairman of the computer science department at Huster College in each fort, which coluded contributions from serve the control of the control of the control of the Early Software quality luminates such as Early Software, perf Orcchow and Capens

The report concluded that U.S. soft ware productively in manifestions upon the ware productively in manifestions upon that it has been declaims since 1993. The management of othware continues to be unacceptable, with only 6% of organizations meeting the criteria of having "defined" software management processes in place. The report's authors concluded that increasing software quality, as well as debugging the continue of the c

Contributors to the software quality and productivity report favor increasing the supply of skilled systems personnel. But they also identify the following peachees that are necessary to achieve greater efficiencies: software reuse, systems integration standards that aren't vendor-

specific, simulation methods for capture of customer requirements, and formal software testing processes and certification of software for custominity with generally accepted standards. Of those measures, the reuse of high-quality software components would yield, by far, the humbest cust-reduction potential.

IMPLICATIONS FOR

MANAGEMENT
Rusing prices, short technology life and chronic systems fadures are rapidly reducing carcutive tolerance for waste. Boands of directors are recognizing that the current shortages of qualified systems personnel are largely self-inflicted, with the year acoon fisaco offering the most immediate proof of forware mis-most immediate proof of software mis-

most immediate proof of software mismanagement.

The prevailing waste in managing software is a corporate asset is scadalous. According to a study by Jones. chairman of Software Productivity Research, Inc. in Burlington, Mass., catceled projects consume more than 15% of all software efforts. Furthermore, d about 60% of the U.S. software givens that are largely avoidable if total outher managetic transport of the company of the contraction of the company of the company of the force is engaged in fising errors that are largely avoidable if total outher managetic contractions.

ment practices were applied.

If those ournhers are correct, proper software management practices could lead to more than a 1 million personnel surplus. Therefore, 1 don't believe that we suffer from a 350,000-person short-age, as has been alleged by those who are looking for more billable bodies to cure a situation that has been caused by mismanagement of vahuable months.

The present shortages of systems personnel in the U.S. will vanish as normal growth, global conspetition and improved systems management practices after the current conditions. That will happen within the next decade, for surtone should not count on the presistence of premium prices and the imbalance between demand and supply to make decisions that bank on that flawed assumption. O

Strassmann (coo@stacorp.com) says certification of reusable software components to high-quality standards will displace large amounts of handcrafted programming.

Review Center

Net Ware 5.0

Novell's NT COUNTERSTRIKE

Iava, directory and Internet tools boost Net Ware. but complexity lingers



et Ware 5.0 (Beta 3)

ich Northber on the midyear hori zoo, Novell, Inc. is poised to try to recapture market sare it has lost to oft Corp.'s NT Server. The new Beta 3 rsion offers enough of the planned features to provide signs of how Novell hopes to meet that goal. Novell has added sufficient

BY GARRETT MICHAEL HAYES

same of those who have left. But to bring oew customers into the fold in the face of NT, Kudos to Novell for significant Novell still needs to take a few more steps toward simplification, making it easier for administrators who don't already have NetWare experience.

pure muscle to keep existing

with the third beta release, in

which Novell has refined components such as the graphical user interface based installation pro cess, distributed printing services, support for pure TCP/IP environments and data storage services. Also added since the previous beta are features such as a unified client installation, Java-based management console. Lightweight Di-

distributed resources STARTING FROM SCRATCH

on a Dell Computer Corp. PowerEdge 4100/200 system improvements in its installation process. Our testers thought that this installation process though still beta-rough in a few places, is significantly easier Client/Server Labs worked for an uninitiated administrator to understand than any post

version. Gone are the disconoected installation routines for such things as the TCP/IP

The overall senser installation process took us about 40 minutes. That didn't include a bit rectory Access Protocol (LDAP) over an hour of preparation support and easier access to time that we spent trying to find DOS-based drivers for our CD-ROM drive. That minor irritant stems from Novell's We installed the beta software continued reliance on DOS for the installation and boot processes

Directory Services INDS), with its tremendous power and flexibility, has been a core component of Novell's offering since NetWare A.O

emerged several years ago. One key element of the strategy for NetWare 5.0 is the continued expansion of the NDS model to

provide more services. NetWare 5.0 includes an engine for LDAP tformerly in cluded with GroupWise). The service makes information such as user names. E-mail addresses and telephone numbers available across the network to anyone running a standard LDAP query client, even to those not on NetWarr

By its nature, NDS lets an organization construct an integrated directory structure, which may span many machines across a widely dispersed physical network. But the amount and variety of

Novell's NT COUNTERSTRIKE

CONTINUED FROM PAGE 69

information stored in a typical NDS "tree" goes far beyond what normally would be offered to an LDAP chent. Finding key pacces of information among the huge number of details stored across numerous servers could become quite time consuming. Novell has solved that problem

Norell has solved that problem by combining the IDAP service with a feature called a catalog. Never seen directly by an end user, a catalog stores a subset of the minimization held in a full NIGS tree, essentially pulling together a quak reterence list of the problem of the p

MANAGEMENT TOOLS - THE NEW AND THE OLD Most management is still done

with NetWare Administrator (NWAdmin) on a client system and modules such as Monstor and NWConfig running on the system console. Novell has made minor tweaks to fold in the new features. We were pleased to see that there's now only one NWAdmin program for both Windows qs and Windows NT clients. One of the buggest changes looming on the horizon is an application called ConsoleOne. Based on Java technology. ConsoleOne is Novell's first step toward providing a unified admin-

Based on java technologe. Consolo-One is Novell's first sept toward providing a unified administrative tool that will look and operate the same across any platform that supports java. In nat current form, Console-One java's much more than an interesting-looking demonstration of things to sungle administrative fore is appealing. If Novell is able to deliver on its promise to unify administrative, at will have taken a major step forward.

CENTRALIZING THE

Administrators will gain greater control over the working environment of their users, while users are freed from some of the details of the network itself under Net-Ware v.o. NDS Policy Packages let

as administrator define in advance the network resources that particular sets of users will enceive from any of the vanous workstations they may use. For example, you could assuin fore critical desking applications and a special person to the accounting group, knowing that the onest time a member of the contraction of the proposed of the contraction of

ease life for end users. No longer does a traveling near need to know details about his bone location within the NOS tree to successfully connect. NetWare will automatically not locate "Free" closewhere in the NDS tree and will even present a list of log-in-possbilities from which the user can have the same network resources connected. Free dark has the same network resources at his disposal that he enjoyed in

his home office At the same time, Novell has admirably addressed the concerns of its existing marketplace by answering more questions than users have asked For example administrators asked Novell to make nassword administration a task that can be assigned to various users. Novell met the challenge by empowering the administrator to assign the nghts for any similar task. Seeing developers solve a class of problems at a single stroke, rather than focusing on a single requesty is heartening

HETWORK PHILOSOPHY

It appears that Novell has finally acknowledged that TCP/IP is the network protocol of choice for most of the world by announcing its support for IP-only network When complete, that will free network administrators from our porting multiple protocols or protocol conversions on their LAN However, I say 'appears' because the installation choices we made requesting only TCP/IP still resulted in the installation of Novell's proprietary IPX/SPX protocols as well, both on the server and the client. Our atturnets to semonic IPY/SPY from

the client rendered the workstation bootable only in safe mode and required us to reinstall the NetWare client software to restore client connectivity.

THE PRICE OF POWER Although the selection of a net

work operaing system remains to a large centra a philosophaci sume bondering on the religious, one flaw became clear during out resting. NeWare has a dizzying wealth of earlier to the contract of wealth of features, especially in the power and flexibility than NDS can place in an administrator's hands. But it remains hampered by it designer's familiarity with their own pendict. They have yet to master the tick of presenting the newcomer with a simple path and crestal clear directions.

As Novell with each vention has raised the bar for features and capabilities, it has also caised the bar on the skills and cost for new customers. There are so many options and configurable parameters that even seasoned NetWare administrators may soon become dated and confused. For movices looking at their first network installation, the prospect is terrifitine.

as terrayoug.

With applications such as
ConsoleOne on the horizon and
efforts continuing to streamline
installation processes. Novell is beginning to address the issue of
complex management. But the
company still has a good deal of
road to travel before it brings its

power under enough control to match Microsoft in the arens of clear and simple administration. One example: NetWare still lacks an easy way to find and load special modules without recourse to the documentation. Learning the name of the module that

controls a CD-ROM by happening to remember the old Load CD-ROM command and then getting a splash screen saying. This is now controlled by ... is of soo module management. NetWare 50 is thus full of both promise and peril, with the final decision riding on what changes Novell makes before the official re-

promise and persl, with the final decision riding on what changes Novell makes before the officul release date. We would especially like to see something similar to the installation wezards available clowhere to guide the novice administrator through basis serup procedures such as configuring print services.

Norell shops will welcome most if not all of the improvement coming in NetWare 40. Seasoned NetWare 40. Seasoned NetWare about 50 miles will have a much easier task of driving NetWare isto new organizations. But if an organization doesn't have NetWare server on NetWere savey administrators already on the server of NetWere 10 miles with the NetWere 10

Hayes is system controls manager at Client/Server Labs, Inc. (www. cshinc.com) in Allanta, a primary test partner of Computerworld.

FLASHBACK: An earlier look at netware

Net Ware 5.0 beta a sign of things to come (Computerworld, Feb. 2, 1998; www.computerworld.com) By David Street

SUBMARY: Code-named Mosh, Netthere 5.0 still needs work, but you already can see signs of improvement, such as a new file system formut, a better DHCP server, distributed printing. IP support and java



In Depth

years hero

For a decade, the Computerwo Smithsonian Awards have honored

IT achievement

search for new heroes" is the otto of the Comps Launched in 1989, the program's charter was to "seek out, recognize and document the uses of information technology most illustrative of a profound, positive and demonstrable impact on society

Has it succeeded? In a relentlessly forward looking industry. a roth anniversary seems like a good time to take a deep breath and look back for a

To that end, we checked in on one winner from each of the Computerworld Smithson-

ian Awards' first nine years. We wondered what had become of

the once-celebrated applications. Had they revolutionized industries? Had they trans formed lives? Had they flickered out? The answer to each question is yes. Some winning ideas have prospered; others have Some applications predicted earthshaking

trends: others failed to concoct that specia potion of timing, finance and good fortune But tonight, as the program begins its 10th anniversary celebration with a black-tie gala in Washington (you can see a list of this year's finalists at http://innovete.ci.edul every Computerworld Smithsonian Award winner — indeed, every nominee — is part

of a unique and, we think, successful attempt to capture history as it happens. 10 years of herses, page 72

1991 1992

1993 1994

1995 1996

1997

1998



Born of the Redney King riots, Virtual Los Angeles – winner in the Education and Academic actegory in 1994 – has morphed into a comprehensive urban simulation program, proj-

WINNER: LC Technologies inc. APPLICATION: Eyequza

APPLICATION: Eyeque Communication System CATEGORY: Medicine Adapting technology for the severely handicapped has not been

a growth business for LC Technologies in Fairfax. Va.

Ten years after receiving the
award for a system that year had,
icapped people use thirt eyes to type. LC has
updated the system for 'you activities such as
sending faxes and accessing the Internet, but
not much else has changed at the timy company
where the original four principals (losee)s and

Jettie Lahoud and Dixon and Nancy Circically still run things.

Although LC grts sporadic publicity—it was featured on ABC's 20/20 in December — only try devices have been sold. "We underestimated some of the difficulties associated with making a commercial product," admits President Joseph Lahoud.

Some problems are technical: Users must

CONTINUED FROM PAGE 71.

keep their heads statonary, which is difficult for chents with cerebral palsy, light can interfere with the infrared signals used in the device; and it's still not portable.

Moreover, the Sao.ooo price tag, though halved since 1989, is still too high. "The hardest thing," says medical coordinator Nancy Cleveland, "is that thousands of people ought to have it and can't afford it."

But they will, Laboud says. He plans to perfect and miniaturize the technology over the next two to five years and build portable systems from scratch rather than buying off-theshelf components.

That will slash prices to \$2,000, he says, enabling the market to finally take off. Either way, the principals are committed. "We're hanging in there." Cleveland says. "We'll

never get rich, but it's satisfying."

— Kathleen Melymuka

WINNER: Purdue University
APPLICATION: Supercompu
ing solves structure of the
virus
CATEDORY: Medicine

Imagine never being sick with a cold again. Other than the fact that you could no longer use a cold as an excuse to call in sick, it could make your life a lot easier.

In 1990, Pardue University researcher Michael Rossman won a Computerworld Sentituonian Award for solving the threedimensional structure of the antivirus using high-powered supercomputers.

Today, those supercomputers have been replaced by several networked PC workstations that run various commencially available software peograms, many of which are created by scientusts and researchers.

And as recently as two months ago, Rossman

and his team analyzed in atomic detail the 3-D structure of the part of the cellular receptor that binds to a virus that causes most colds in humans. Using techniques such as X-ray crystallogranolvs scientists can determine the 4-D structure

of biological molecules, atom by alom.
Russman and his team have looked at many types of visues, including hacteral visues and visues that affect the heart and other muscles.
"We're dealing with millions of cells here not just collecting and spitting out days," Rossman says. "We can look at a lot more visues."

now."

Rosaman and other scientists have now figured out part of the structure of the ICAM-1 receptor, which normally holds infection-fighting
white blood cells in place but is bypassed by the
rhimorizus, which causes the common cold.
Mapping the atomic structure of a virus may
tust thely scientists find a cure for the common
tust thely scientists find a cure for the common

— Joyce Chutchian

WINNER: Frito-Lay, Inc.

APPLICATION: Handheld computers

CATEGORY: Business

In 1991, making pricing and product decisions for stores at the route level seemed a radical, even preposterous, idea.

Then Frito-Lay's handheld computers changed everything. The system let salespeople in the field track sales and pricing data, then feed the data back

mightly to Prito-Lay's Dallas headquarters.

Here years later, asles reps are still using the handhelds — albeit better, faster and easier to carry versions, says Steve Schuckenbrock, the former chaef information officer at Frito-Lay who recently became sensor vice president of in formation technology and CO at PsysuCo, Frito-

Lay's parent company.

Before 1991. Prito-Lay beadquarters made the
distribution decisions: That power was pushed
to the route level in '91, then even further — to
chains and individual stores — in a 1996 upgrade. Schuckenbrock says. For example, if a
national chans wants to sell Frito-Lay products
at a specified ories, the handfold computer can

lock in the price for that specific chain.
That shift in power summarizes two moders business goals offering as much choice as possible to the consumer and empowering field employees. The application also the Fribo-Lip more tightly into the supply chain and improve

forecasting and inventory management.

And although Frito-Lay's handhelds didn't necessarily predict the PalmPilot revolution.

Schuckenbrock says the idea has been adopted by other companies, including Frito-Lay's competitors. "Everybody's doing handhelds," he are. "There's no other was to manuse that kind

of volume."

— Krith Shau

WINNER: Stanford Medical School

APPLICATION: GenBank Computer Resource CATEGORY: Science

The award-winning system that updated and maintained information about the human genome no longer exists, but the heart of the application — the GenBank datalives on in a new system at the Nation-

base — lives on in a new system at the National Genter for Biotechnology Information (NCBI) at the National Institutes of Health.

Genikank holds data about the structure of DNA, the molecular blueprint for bic. Defining and cataloging segments of the huge DNA molecule is essential to understanding disease. Every major advancement in medical science to day owes a debt to Genikank, says Francis Quellette. Genikank coordinator at the NGB.

The contractor-supplied system of 1992 auto mated a manual process that couldn't keep up with an explosion in knowledge about human genetics. But it, in turn, succumbed to exponential growth in data and user activity. Six years ago, GenBank held 90 million "base pairs." the building blocks whose se quences define segments of DNA. Today, it

holds 1.5 billion. New ones are added at the rate of 4 million per day, and GenRank's World Wide Web site sees a million hits per day Nobel Prize winner Richard Roberts, research director at New England Biolabs in Boston, uses

GenBank dark "There are many aspects of molecular biology where access to GenBank is more important than . . . a centrifuge," he says. The NC81-developed system has a new, ultra powerful searching capability called Entrez. Propelled by four Silicon Graphics, Inc. Challenger computers, it can simultaneously search

several logically related databases, including a 10 million-article library. To help researchers discover the function of a new gene sequence, Entrez can find near matches with other sequences having similar properties - "things in a twilight zone." Quellette says

- Gary H. Anther

WINNER: Los Angeles County Department of Public Social

APPLICATION: Auto gerprint Image Reporting nd Match System CATEGORY: Government and

One in every five residents in Los Angeles County receives service

from the county Department of Public Social Services (DPSS) To bein track cases and to prevent welfare fraud. DPSS implemented a fingerprint scan ning and matching system in 1991. It's projected to save \$83.8 million by year's end.

Welfare recipients' fingerprints are scanned into the Automated Fingerprint Image Report ing and Match System (AFIRM). After a print is scanned, a software program looks for a match. If it finds one in the database, the applicant is already receiving aid and is trying to defraud taxpayers.

"The system is meant to be a deterrent," says Bill Macfadden, division chief for computer services at DPSS. It's working: There's only one fraudulent attempt per month now, Macfadder says, as word has gotten around that this partic ular con is nearly impossible to pull off.

AFIRM has paved the way for finge imaging systems nationwide. California is implementing a system that will save the state \$94 million in its first year alone, and Texas, Illinois and Connecticut have also climbed onboard "L.A. has proven it's cost-effective," he says.

NNER: University of Califor nia, Los Angeles **APPLICATION: Rebuild Los** Angeles (since renamed Virtual

Los Angeles) CATEGORY: Educ

The cool-looking urban plan application that received accolades in 1994 is still cool. It still boasts full-color graphically enhanced virtual models of city blocks in Los Angeles, complete with graffits

off-ramps and exit signs. But Rebuild Los Angeles has extended beyond its original intentions: to facilitate the rebuilding of earthquake, fire, riot and flood-damaged areas of Los Angeles and to let whole communities partici-

pate in the urban planning process The program has been retarned Virtual Los Angeles and now boasts 30 or more applications, all under the ourview of UCLA's Department of Architecture and Urban Design. And project director William H. Jepson and his urban design team at UCLA have coined a new field and tech term, "urban simulation," which lepson

starting to consider for their own urban With this vertual planning technology users can view proposed changes to landscaping, highways and buildings, swap in al ternatives and create urban blueprints — long before final decisions have been made, build

ings razed and big money spent The design system was conceived in the home of the Rodney King riots of 1992 - in which looting and nationally televised beatings broke out after a jury found the Los Angeles police not guilty of beating King during an arrest - and the 1994 earthquake in North rider. Calif. Most situations it's used for now are less cataclysmic, though not unimportant

APPLICATION: Forward Looking Windshear Weether edar System CATEGORY: Tree

"THE ACFT THEN ENCOUN-TERED ... WINDSHEAR GO-AROUND PWR WAS AP PLIED, BUT THE ACFT STRUCK THE GND ... HIT A CAR & 2 WATER TANKS BROKE APART & BURNED."

That clipped accident report belies the horror 10 years of heroes, page 74



- Stefanie McCan

CONTINUED FROM PAGE 73

of the day in August 1985. Delta Air Lines Flight ros was trying to land in Dallas when windshear draw it into the ground. The plane burned. One hundred and thurty-seven people died Only 16 comband

And America had had enough. Windshear a sudden change in wind speed and direction associated with a storm system called a microWINNER: Levi Strauss & Co. APPLICATION: Personal Pair

sands, of lives."

Preeram **CATEGORY: Business** Levi Strauss is undeniably a pic neer. Its namesake founder natented the first pair of seans in

1871 So it wasn't a surprise when the retailer began selling custommade jeans for women in 1994 - something no other major apparel manufac-

turer was doing. The risk past off. Custom-made jeans acount for about 20% of women's jeans sales at the company's 25 Original Levi Stores. Encour aged by the sales, Levi plans to roll out a new version of the Personal Pair program in the fall. The program will then include men's jeans and will offer more style choices.

"Levi deserves a lot of credit," says Wends Liebmann, president of WSL Strategic Retail in New York. "No one else was willing to test mass customization in front of the public. Levi broke barriers."

But Liebmann points out that mass customization hasn't taken off, and she doesn't think that it will in any huge way. Not everybody will pay entra for customized clothing; off-therack suits most consumers just fine. If customization were free Liebmann says, there might be more interest Nevertheless, customization has drawn atten-

tion to the use of technology to improve cus tomer satisfaction. Liebmann mentions online beidal registries as an example. - Amy Melloy

means a lot to us to have another overen that can help save hundreds, and perhaps thou - David Rame

Nobel Prize winner Richard Roberts at New England Biolebs says GenBank, win-ner in 1992's Medicine category, "is more ortant than . . . a centrifuga

new partner: the American Association of Refixed Persons. "We want to reach across the generations," says Donna Frishy, executive director of Rock the Vote. "It's a way to give grandparents something to give to their grandchildren. Jonathon Sallet, .MCI Communication Corp.'s senior vice president of law and public policy and a Rock the Vote board member brought together the unlikely bedfellows after recognizing that weeking together could belp bolster both groups' voter drives In addition to reaching out to the bifocals set.

Rock the Vote has other big plans this year. Kate Coyes, the group's director of special projects says plans for the World Wide Web site (unaw-recisherote.org) include additional election issue content and Rock the Nation, a program focused on encouraging participation in local issues. There's a lot of interest from individual states." Cover says

NetVote 98 (www.netvote98.mci.com) was available for online voter registration at the AARP Biennial Convention June 1-4 in Minneapolis Emergency staff was on hand for geezers who threw out their backs while stage-diving.

- Laura Hunt

rints don't lie. Since Los Angeles w

ward in 1993 for its scanning-and-recognit ystem, some types of welfare fraud have d st nil, says social services computer ch

> burst - had contributed to at least 26 airline accidents since 1964. Some 500 people had been killed, bundreds more injured. Soon after the Dallas crash. Congress insisted that the Fed eral Aviation Administration (FAA) begin a research and training program to conquer wind-

Nine years later, the FAA certified Allied-Signal's RDR-4B as the first predictive windshear weather radar syste Windshear has not killed any airline passen

opes since Other factors, such as pilot training and airport weather radar systems, contributed to that remarkable progress. But RDR-48 was the first system to give pilots advance warning of windshear. It's now used by 4,016 arroraft in 71 air-lines around the world. "It meant a lot of business for the company, and that's good," says AlliedSignal spokesman Ron Crotty, "But it also WINNER: Rock the Vote APPLICATION: 1-800 REGISTER CATEGORY Media, Arts &

Entertainment Rock the Vote focuses on informing and empower ing MTV-generation kids encouraging them to get out and vote. But this year, Tony

nett may be singing with Sheryl Crow and LL Cool J. And those MTV kids will have to clear space in the mosh pit for some radical newcomers from Generation

Yes, NerVote 98. Rock the Vote's 1998 election program, includes a



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technology newspaper, has been the premier chronicler of the technology revolution. Now you can access that history at the Smil

or online at the Smithsonian's National Collection of the History of Information Technology. It contains over 2,500 case studies and oral histories from information revolutionaries such as Bill Gates, Andy Grove, Seymou Cray and more.

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They've paved the road. Where will you take it?

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IT Careers

serworld Jose 8, 1998 (www.computerworld.com

The once straight-and-narrow career path to information technology pre-eminence has taken some unprecedented detours lately.

And it's being trammeled by a few unorthodox IT job seekers. Some of those jobs have migrated to IT from other departments.

Others are needed to translate between technical and end users. Still others represent a new layer in the hierarchy between creative ideas and management. Here's a sampling of what and where those

new jobs are - and what kind of hybrid, crazy quilt of

skill sets are likely to land them.

BY MEI AMIE MENAGH

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DAIA PRUVISIONEX
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abled chainfielded dam," MacLend says. Then they'll connect their cus-ses (car dealerships, real estate agents) to the LAN to enable the re-sisten of data collection for reads on the Web. Two have to have cus-re, business and sales skills. You'll need flexibility and comfidence." to right candidate is looking at a 565-500 salary, a 15% to 20% signing as and stock options in the organization.

EXECUTIVE PRODUCER

EXECUTIVE PRODUCER

Transition producer might make you disable of Titantic top Holem MoEamon, president of Technical Commotion, loc., on IT search from the toEamon, president of Technical Commotion, loc., on IT search from the tocommonity of the desirable of the Commonity of the Commonity

SENIOR BUSINESS ANALYST

by may sound like they're in finance, but senior business analysts are at Christy Taylor, a staffing consultant in Dollar, has been hiring for IT if a Southwestern Bell Communications. ness analysts are 'on the IT deci

TELECOM FINANCIAL ANALYST

stional telecommunications are causing many IT man-eir foreign phrase book and their aspirin. They're also inancial analysts" to help sort through the snari of ca-

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Memorik is a freelance switer in Manie Corner, Vt.

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Career Counselor

For IT professionals trying

to plan skills and training needs for the next couple of years, today's top technology skills probably

will still reign

$SKILLED_{for}$ **TOMORROW**

ant a tip on what the really technology skills will be two years out? Look no other than today's rlp-wanted ads With the possible recretion of Windows q8 (it's too early to tell per needed in 2000 an

expected to be the same ones that are popular now What's changing is the combination of technology skills needed and the growing importance of busi-

So here's a peek at the skills that will continue to be in demand heading into the new century. To support any IT cavironment, you will need knowledge of multiple operating systems. ·PC administrators will have to do more than just install software at the local level. They'll have to un derstand how that software solves business needs and contributes to the bottom line

 Shared computing, portable commuting and security skills will be critical to all op-

· Multimedia products will be refined, and many PCs will have televideo applications for conference calls. training and interviewing. Considering the above, de

mands to communicate in a true, open-systems environment will greatly challenge PC administrators of the future (but they also will be financially rewarded).

How do you prepare for the challenges ahead? To get an insider's expert view, take our company's senior MVS/ VM systems programmer out to lunch and pick his beain for operating system interface knowledge. Do the same with your company's Unix or

OS/400 administrator If you're still fairly new in your information technology career, get education in all asand multimedia interfaces

Knowing what is required from the back end to ex pedite the front end's request will let desktop ad ministrators maximize performance. For the next two to four years, Windows NT will be in demand making it a sure bet for training. The network computer will have limits that we haven't faced with word processors. The functionality of current word processors, presentation programs and spreadsheets are too

convenient to give up for most users Still, the cost of network computers is attractive

and they may work in environ ments such as order autor curtary for hotels, hospitals and libraries and any small-scale, centralized ap pheations that require GUIs. Net work commuters will become more popular for departmental use at rger organizations because they offer a reliable system whose ke

functions reside at a single point. But most users will still wan their standard desktop business processing applications and will be

BY LINA FAFARD

Demand for NT skills will grow because of the benefits NT offers: versatility and a more open computing envi-

Though the network com ester lacks the scalability for rge transaction volumes faster chip speeds will help popularize it, probably in about another three years. By 2000, midsize com

nies considering outsourcing will save a lot by letting a ser vice hureau set up networ computers for them internal ly and maintain their data base externally. Also, up-and will be able to take advantage of network computer tech nology with out base management. O

Futurd is vice president of training and marketing at The Partners, a computer indus earch firm in Torrance, Calif www.jobbrowser.com

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Users: Online investments are poised to impact bottom line

puny in May het an all-time a price they are willing to pay onthly high of 236,000 Web for a ticket and then looks for a ticket sales worth more than carrier willing to sell, is expect-SR c millon ed to announce tomorrow that "It's clear that, unlike persales rose more than 200% dur

Priceine.com Chairman and CES Jay Walter: Phone sales at the neth-net site cost \$6 to \$7 ce, whereas a Web fransacti

is "essentially zero marginal cost."

vet." Citron said.

online, he said

ing the past three weeks

Internet color are only shoul

1% to 4% of Ticketmaster rev-

enue but could be 6% by next

year. This is not a mass market

sales are new business, no

merely existing buyers moving

Some early players are already

pleased with results. American

Airlines is seeing about a5%

more ticket sales through its

Web site than a year ago, even

though Internet revenue still ac-

rounts for less than a% of its

The Fort Worth, Texas based

airline is planning some new

haps cars, tickets, up to a certain price, are items that consumers are just willing to buy on the Web, said Mark Hardie an analyst at Forrester Research. Inc. m Cambridge, Mass.

The emergence of a new channel will have major ramifications on the entertainment and travel industries," concluded a Forrester report by Hardie and three colleagues. *Providers that choose not to compete in this new channel will lose customers unwilling to endure telephone tag with tick eting agents, time-consuming price shopping and inconve nient scheduling."

A PEW GLITCHES

Other organizations, from airlines to sports teams, are reporting sharply higher Internet sales. But not everyone has suc cess stories: some are sites suffering from technical glitches low traffic or the problem of attracting lookers, not bookers.

"It's very expensive to create and maintain a transactional Web site," said Alan Citron. president and chief operating officer at Ticketmaster Multi media Ticketmaster has found that "most of the [third-party electronic-commerce) products don't work as well as advertised. [requiring] tremendous effort to accommodate them to your

Web site," he said. Once a site is up, increm tal savings can be substantial. At Priceline.com, phone sales

cost \$6 to \$7 apiece, whereas a Web transaction is "essentially zero marginal cost," said Priceline.com Chairman and CEO

The a-month-old site, which lets consumers privately submit

its of the Web Many sites can't handle buge spikes in traffic. Technometer is now comful not to overhype online ticket availability after publicity surrounding Chicago Bulls tickets last year. The response was so huge, it crashed the system," Gitron said

Other technical problems apgrently sank the New York Yuckey' online turketion The 'tankeer' Web site woods

edly lost six days' worth of ticket orders in March, just before the start of the baseball season.

The Yunkees com site no loneer has an online ticket infractructure and instead links to Ticketmaster's site. The Yankees spokesman responsible for In-

Some teams, though, are suc-More key, 20% of those Web ceeding online. The San Fran room Giants have already sold more tirkets on the team's Wish one this season than in all of last year when the team sold \$100,000 worth of tickets on

the Internet. "It's really shown some great results," said Gary Frenkel, sate producer of the team's Virtual An Internet-sawy Bay area

fan pool and lower service charges for online orders have helped to drive traffic. Yet even popular sites that post fare and flight information investments to add features and more personalization to its site can have trouble closing sales

Ticketmaster's Alan Citron: Most hird-party E-commerce products ne't work as advertised, and eccommodating them to your ite takes tremendous effort

(avane on com), which already receives 4 million page views per week Hot events help. ArtistDirect in Encino, Calif., said it sold out Loop tickets for next week's Tibetan Freedom Concert m Washington in less than four

We could have sold it out in is minutes if the server wasn't so overloaded," said Jen Garber. nations director

That points to one of the lim-

The Sabre Group in Fort Worth beasted back-to-back weeks with \$1 million in revenue last fall, but executives at the constany have acknowledged that many users come to the Travelocity site to check flight fares and schedules but then buy their tickets else-

Last full Subsechief informs tion officer Terry Jones said profits were still "a couple of vests away."O



With Page Vault, secur ity stays with the docum at all times Every time you try to access It. re metter when It is, you have to get read

New encryption tool improves control over digital documents

CONTINUED FROM COVER !

combination of all fof them) appears to be unique to this pack age," said encryption expert Steer Kent chief technology officer at CyberTrust, a division of GTE Internetworking in Cambridge, Mass, "A single means of offering a wide range of these document security sesvices it impressive.

Target users include financial institutions, law firms, manu facturers, insurance companies and government apencies - all of which work with and exchange confidential documents.

TRUE CONTROL Beta-user Conectiv Communica-

tions, Inc., a local telephone company in Newark, Del., may use PageVault in an Internet based service for secure document dutribution

John Scoggin, chief technology adviser at Conectiv, said most security products are focused on authenticating users but PageVault goes well beyond that to actually control the distribution and use of docum "This is a pretty new idea," he spid

PageVault is the branchild of David Pensak, founder, presi dent and CEO of Authentica and a senior research fellow at Du Pont Co. in Wilminston Del. He also founded Raptor Systems, a firewall company be

Most security products offer "one-shot perimeter security," Pensak said. That means once a hacker finds a way to break in to a system and access confi dential data, he is bome free "But ours is persistent, distribused security." Pensak added "The security stays with the doc ument at all times. Every time you try to access it no matter where it is, you have to get

reauthorized to see it." PageVault's first release is for rvers running Sun Microsys-

tems, Ipc.'s Trusted Solaris, a Unix version configured for high security. A Windows NT version will follow in three to four months, Pensak said. PageVault handles documents Adobe Systems, Inc.'s Portable Document Format and will run on any client machine

running Adobe Acrobat. The secure server authenticates users and approves requests to read encrypted documents. It keeps track of user permissions - which hosts can access a document and any date or time restrictions the docu-

ment's owner has applied. The PageVault client retrieves the keys needed to decrypt the document so it can be read and printed. Copies of a secure document can be freely made, but the server most authorize each reading of them. Unauthorized alterations of a copy render it subsequently unreadable.

Pensak acknowledged that many users are perfectly satisfied with "one-shot perimeter" security, but he said many fail to understand that "80% of all misuse of computer-based information is done by people who are already authorized to use the information." He said user education about that risk would be the "linchpun" of Page Vault's success

PageVault is a "tethered" prod uct. It keeps users tied to the security server, explained Chris Hunt, a business development manager at Adobe in Mountain View, Calif. "I can walk out with the floppy that has the schematic of the next version of your chip. But when I open up the file at home, I don't have permission to read it now," be said.

Small companies would pay \$5,000 for the Page Vault server and \$125 for each client. Pensak said. Large companies would pay \$300,000 for the server and \$10 per client copy. Cl

Feds warn firms to get on Y2K stick

Defficials turn spotlight on millennium laggards

By Matt Hambles PEOERAL OFFICIALS last week be-

can circline the wagons around banks and other companies that haven't adequately prepared for year 2000 problems

Spurred by concern that some U.S. companies aren't making enough headway, bank and thrift regulators joined members of Congress last week in tougher talk about compl ance actions they could take Here's what happened last

The Federal Deposit Insur ance Corp. (FDIC) said it would take increasingly stronger acnon" against banks it considers year 2000 laggards - actions that could include asset seizures. The FDIC has already sent warnings to 163 banks and is processing 74 more. Sen. Bob Bennett (R-Utah) called on the Securities and

Exchange Commission strengthen its requirement for publicly traded companies to report their progress on the di change problem Initial SEC filings "make it clear that some companies are not taking the problem and their clients' interests seriously," said Bennett, chairman of a Senate panel on

the year 2000 · A spokesman for President Clinton's year agon conversion council said the Department of lustice is expected to allow companies in the same industry to collaborate on year 2000 fixes. free from antitrust restrictions Antitrust concerns have slower some banks and telecommunications companies from joint projects, industry analysts said The director of the Office of

thrifts haven't potten a clue, but the |readiness| ratings we've given are more effective in getti a response than expected," said Thrift Supervision said rural in-Ellen Sesdman, director of the stitutions are at the greatest risk agency, which regulates 1,200 for year a000-related systems ·---failures. "We found a couple of

Noting that larger banks have

begun testing year 2000 fixes with data service providers, man warned lenders at a New York symposium to verify and test the compliance of their complete, data and moior net-"The telecoms have been late

getting off the mark' with year 2000 preparations, said Steven L. Sheinbeit, a senior vice presi dent at The Chase Manhat Bank Corp. in New York, which uses network services from eight carners

Sheinheit said larger banks such as Chase can arrange to have another carrier step in to provide services if needed.

Sheinheit said federal oversight of the year 2000 problem is valuable, even though the private sector usually favors less powrmment

He said he told government officials. "If you don't have a regulator on year 2000, create one. It's positive to have someone there with guidance and

The government has been tracking financial institutions. Of 9.165 such companies visited by federal auditors in recent months, fewer than 1% were doing unsatisfactory work, said Jennifer Dickerson, year 2000 manager at the Federal Financial Institutions Examination Council. Of the rest, 86% were found to be making satisfactors progress, and 13% were judged to need improvement. C

Uncertainties stall euro CONTINUED FROM COVER 1

a different enimal

That's because Economic and Monetary Union (EMU) project managers on both sides of the Atlantic have to address the economic and political consequences of the euro. Companies need to stabilize product prices across national borders.

They have to rewrite system and re-engineer some business processes without firm guidelines from countries such as Germany and France

"There is a lot of uncertainty around EMU," said Kevin Todhunter, a senior business consultant at Barclays Bank PLC, which is spending about \$240 million to get its systems euro-

The euro "is very much a political issue with severe implications for IT," said Todhunter, who spoke last week at an FM1! conference organized by Business Intelligence Ltd., a Lon don-based research firm. The implications include con-

lose than seems months with no sources already stretched to handle the year 2000 problem and other revenue-generating projects "that can't be delayed. said Brian Spiller, director of billing systems at Avis Europe in Bracknell, England.

For Avis, that includes conrental-car fleet, Spiller said.

tinuing information technology prosects to develop more costeffective systems to manage its The uncertainty of the euro's introduction as late as last summer gave many Europeao

information systems organi zations fits and starts. For esample, Barclays' euro project 'paused' early last year when the euro's future looked shaks Todhunter said. The project accelerated again last summer when the euro once again ap peared to be a go, causing the bank's IT group to play catchup, he said

The unsettled nature of the cu-

ro has made it difficult for euro project managers to gain buy-in from senior executives, busi ness managers and key cus tomers. At Reuters Etd., for eaample, euro program director

HIGH EURO STAKES

How to get board-level commitment for euro conversion projects:

- § Find a chamoion who can raise the project's profile and motivate the organization.
- I Show what business activities are at risk and how customers and competitors are addressing the proble Ask for small dollar commitments to attack bite-size project chunks. Don't ask for all the money at once.

Geoffrey Sanderson said it was hard to get customers and emslovers 'to understand the complexities and respond" to the mobilem. To common current that the cure was going to happen, Reuters published a blitz of EMU-related stories in its in ternsl and customer magazines raising awareness of its likely acceptance

Reuters also is in the process of approving a plan to award each of the company's 16,000 nius moridande emplement 2 000 stock options beginning next month. The stock options which can be exercised after three years, are tied to the suc cess of Reuters' FM11 and year 1000 projects, Sanderson said EMU project managers must

prepare for a wide variety of what-if scenarios - such as making last-minute systems conversions in case an "in country such as Italy is pushed out of the European Union or an "nut" country such as the U.K. joins EMU during the next several years.

EMU project managers are also finding it tough to plan when none of the EU members



ves against business eers "who try to use EMU as a Troign horse have introduced euro rules

within their borders. Avis. for example, rents cars throughout Europe and already handles myriad currencies, so there's little impact on its multicurrency systems. But the national systems it uses in each country have to be changed to recognize and process transactions in local currencies and the euro. Those factors led Avis' EMU project costs to balloon from its original estimate of \$40.5 million to \$48.6 million to more than \$18 million, Spiller said. O

verting big financial systems in



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A system that allows consystem that allows consumers to schedule blocks of time — such as dunner to be disturbed by a call. Only callers who enter a code or state it is an emergency can get through, (5,757, 8-99, Jon R. Boulsware, et. al., May 26)

System for scheduling the automatic delivery of TV programs or videos based on customer preference. This customized "virtual channel" is intended to eliminate channel surfine. (5.718.32).

Frederick Herz, et. al., May 26)

SUN BONNET FOR LAPTOPS

Treesty years ago, Perk Co. in Santa Clara, Calif.,

patented the first visor for computer monitors. Now

it has one for laptops. The corrugated plastic visor,



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Streetlights zap Internet experiment

A much-ballyhooed U.K. project to provide highspeed internet access through electric power lines has hit a snag. Reuters reports. Beta users discovered that streetisiphts connected to the power grid turned into roque transmitters that broadcast users' internet downloads as high-frequency radio waves.

t downloads as high-frequency radio wa

It must be getting hard to find fresh names for high-tech products. Aniater, Inc. in Slobke, III., for example, offers a cubicle cabling system called DataThing (pictured at left). "DataThing post plug-and-plue bon-

dies of woice and data cobling into tystems familiare to make it informationfriendly." The company says. And Parable LLC on Newton, Mass. offers an internet technology called Things. Things are multimedia objects that spice up Web sites with motion and sound. Tou can make Things, change Things, own the copyright to Things or grab free Thing from Thing(Wild Issues MingmontLeon).

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Totalin place to insuch in first line of servers for the conmarket this week in the U.S. The company has been a servers in Japon and already sells notabooks in the U.S.

standing on formality here!

disputall may not have formely serveded and served provising the Web persol like it has in the servede, but I've already up on the Pals. The also, called Start provision-tone), offers 6-mall, a Web compt, ment, value clays, sports, stock findings, weather and above controlled features. Preside Web marries or America Delive's Hosffield, Excline, Informatic Web marries or America Delive's Hosffield, Excline, Informatic, Lyons and Yahno.

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som by researchers from Desaid University and Hider University and Hider University and the many last manage last manifester for high-lack worth or substitution for the tracking worthers was high when complay received mean nonmonatury componenties — such as recognise, status, hide and responsibility — and more career planel sold than their enoughtful consultance.

ats of businesses are paying tip service to network security, say

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